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LONDON, THURSDAY, SEPTEMBER 10, 1987

Algeria ... 400 Dz. Italy ... 110 Rich. Greece ... 800 Rich.  
Austria ... 250 Dz. Israel ... 140 Rich. Turkey ... 125 Rich.  
Belgium ... 200 Dz. Japan ... 1,000 Rich. Cyprus ... 550 Rich.  
Denmark ... 500 Dz. Jordan ... 450 Rich. Saudi Arabia ... 750 Rich.  
Finland ... 1,000 Dz. Korea ... 200 Rich. South Africa ... 700 Rich.  
France ... 2,000 Dz. Kuwait ... 1,000 Rich. Spain ... 800 Rich.  
Germany ... 4,000 Dz. Luxembourg ... 100 Rich. Sweden ... 800 Rich.  
Iceland ... 100 Dz. Malta ... 100 Rich. Switzerland ... 250 Rich.  
Ireland ... 100 Dz. Morocco ... 100 Rich. United Kingdom ... 1,000 Rich.  
Italy ... 2,000 Dz. Netherlands ... 300 Rich. U.S.S.R. ... 200 Rich.  
Norway ... 100 Dz. Norway ... 200 Rich. U.S. Mil. ... 500 Rich.  
Portugal ... 100 Dz. Nigeria ... 100 Rich. Yugoslavia ... 1,200 Rich.

ESTABLISHED 1887

## Iraq Reports 13 Bomb Attacks On Iran in a 'Day of Revenge'

Compiled by Our Staff From Dispatches

MANAMA, Bahrain — Iraq said its planes bombed 13 oil, industrial and other targets inside Iran on Wednesday in a "day of revenge" for Iranian attacks on Kuwait.

Iraq said that 75 civilians had been killed or wounded in the attacks and that it had shot down two Iraqi jet fighters. It promised to retaliate swiftly for the raids.

The Iraqi communiqué said the raids demolished a paper factory in Dezful, oil loading platforms in the Kanou area in southern Iran, an oil pumping station in Pagi Mink, an engineering plant in Arak, a sugar factory and a cement plant east of Bakhtaran, a cement factory in Dezful and a power plant east of Shushan.

Iran's official news agency, IRNA, monitored in Nicosia, quoted a military communiqué as having said that the raids were in response to "Iranian attacks on Kuwait's commercial and oil lines and the

firing of missiles into Kuwaiti territory."

Kuwait has said that Iran fired a surface-to-surface missile at the Kuwaiti coast on Friday. There were no reported casualties.

Telex radio said civilian areas had been bombed in raids on Arak, Doroud, Dezful and Khorramshahr in southwestern and western Iran.

The Iraqi communiqué said the raids were launched in a "day of revenge" for Iranian attacks on Kuwait.

Iran's official news agency, IRNA, carried a warning by Iran's War Information Headquarters advising Iraqis to evacuate strategic areas "so they will not be hurt during Iranian retaliatory operations, which will start within the next few hours with full intensity."

Iran admitted in a communiqué Wednesday night that it had lost one plane during the raids. It said its planes carried out 122 sorties during the day.

Iran also said an Iraqi jet had been shot down during Tuesday night's attacks on two "naval targets" near Iran's big Kharg Island oil terminal in the northern Gulf.

The Iraqi attack ended a three-day

kill in raids on shipping in the Gulf.

Iran denied that any planes were downed in the Kharg raids.

In Washington, the United States criticized the Iraqi attacks and appealed to both sides to stop fighting.

A State Department spokesman said \$32 million in military assistance to Chad this year and has provided Chad's army with Redeye anti-aircraft missiles. U.S. military aid to Chad originally was budgeted for \$5 million for this fiscal year.

President Hissene Habré of Chad first asked for the Stingers during a visit to Washington in June, which included a meeting with President Ronald Reagan. Mr. Reagan assured the him of U.S. backing for his efforts to drive Libya troops out of into the disputed Aouzou strip.

The Pentagon spokesman, Robert Sims, noted Tuesday that there was speculation that the Stinger was under consideration for Chad, but said it would be "inappropriate" for him to discuss any "specific hardware." However, other administration sources said the Stinger was being considered.

The sources also said that a Hawk surface-to-air missile used Sunday by French forces to shoot down a Libyan Tupolev-22 bomber over Ndjamena was not provided to Chad by the United States but had been sold earlier to France.

Meanwhile, administration officials sought Tuesday to play down reports from Paris that the United States and France were pursuing different policies in Chad.

Foreign Minister Jean-Bernard Raimond of France was quoted by news agencies as saying that the United States was "perhaps giving Chad advice that is different than ours, but what is best for the Chadians and Africans is the French policy in Africa."

The French have supported international arbitration to settle the Chad-Libya dispute over the Aouzou strip.

But Charles E. Redman, the State Department spokesman, reiterated on Tuesday U.S. support for Chadian efforts to retake the strip, saying that it stakes in the current fighting was Chad's "territorial integrity and sovereignty."

Mr. Redman denied that the administration had "advised" the Chadians to "go north," either to recapture the strip or to carry out an attack Saturday on the Libyan air base at Mafroum-Sarab, 60 miles (97 kilometers) inside Libya.

But he did not condemn the raid, calling it "a limited operation against a base from which it was suffering aggressive Libyan attacks."

U.S. officials previously have said that they hope the heavy losses repeatedly inflicted on the Libyan Army by Chad will spark an uprising against the Libyan leader, Colonel Muammar Gadhafi, and lead to his demise.

Toshiba has admitted that a subsidiary, Toshiba Machine Co., in



Corazon C. Aquino walking to her palace guest house in Manila after her cabinet resigned.

## Cabinet Resigns To Give Aquino 'A Free Hand'

By Keith B. Richburg

Washington Post Service

MANILA — President Corazon C. Aquino's entire 28-member cabinet submitted resignations Wednesday to give Mrs. Aquino "a free hand" to reshape her embattled administration, after an aborted coup that has underscored serious divisions in the government.

Some kind of a high-level shake-up appeared imminent in the 12 days since the coup attempt, as the government has become embroiled in an intense round of bickering and recrimination.

Still, the widespread perception has deepened in Manila in recent weeks that the government lacks direction and spends most of its time lurching from crisis to crisis.

In the course of a month, a powerful cabinet member, Jaime Ferrer, the local government secretary, was assassinated amid growing fears that violent crime was spiraling out of control. Less than three weeks later, leftist-inspired general strikes against higher fuel-oil prices crippled transportation and slowed factory output in the country.

There is now a widespread public perception in the Philippines, after the coup attempt and now the resignations, that after 18 months in power, Mrs. Aquino's government is dangerously split with no real agenda for solving mounting problems — particularly a tenacious communist insurgency.

Still, the mass resignation of the cabinet caught many observers — and even some cabinet members — by surprise.

"When I sat down, there was a blank piece of paper in front of me," said the defense minister, Rafael M. Ileto. "My neighbor told me we were going to tender our resignations."

The government press spokesman, Teodoro Benigno, who also resigned, said: "It was sort of spontaneous combustion. Nobody mediated it, not a single group. Almost all of us thought of this idea almost at the same time."

Mrs. Aquino has not officially accepted any of the resignations, although analysts said some of her cabinet aides were likely to go.

If Mrs. Aquino makes major changes, as expected, it will mark her third cabinet shuffle since coming to power in February 1986 and the second time she has had the changes forced upon her by the mass resignation of the cabinet.

After the first mass resignation, in November, Mrs. Aquino dismissed Juan Ponce Enrile, who was then the defense minister, and she later accepted the resignations of three ministers whom the military considered either corrupt or too far to the political left. But after raising expectations of a major shake-up, Mrs. Aquino kept her cabinet largely intact.

Although most of those events were not of the government's making, each successive crisis has brought heightened pressure for a revamping of the government.

One of the most likely aides to be replaced is the executive secretary, Joker P. Arroyo, whom many in Manila have described as a political abattoir for Mrs. Aquino. The military views Mr. Arroyo as a communist sympathizer because of his past role defending communists in court when he was a human rights lawyer. Business leaders and even some of Mr. Arroyo's colleagues in the cabinet have criticized him as a poor administrator responsible for a bottleneck of official paperwork.

Also mentioned for replacement is the special counsel, Teodoro Locsin, the president's speechwriter. Mr. Locsin has been roundly criticized here for his conduct during the coup attempt, when he went to the military's temporary headquarters and appeared to be trying to direct the military operations to quash the coup.

## Danish Parliament in a Deadlock

Despite Election Setback, Schluter to Form Government

By Howell Raines

New York Times Service

COPENHAGEN — Prime Minister Poul Schluter, after a surprising setback in general elections, went through the formality of resigning Wednesday, but then immediately went to work to form a new coalition government.

The 56-year-old conservative was in no immediate danger of being turned out of office because Queen Margrethe II, after receiving his resignation, then asked him to

lead negotiations to resolve the chaotic parliamentary situation caused by the election Tuesday.

Mr. Schluter has at least until the Folketing, or parliament, convenes on Oct. 6 to form a new government. His efforts to do so were part of a uniquely Danish political drama played out here Wednesday — a drama that illustrated both the complexity and flexibility of the political system.

In general, it was a drama of high-gloss. But analysts agreed

Sometimes, multiparty coalitions win clear majorities and the new government forms quickly, as happened with Mr. Schluter's four-party coalition in 1984.

But when the election produces a "doubtful majority," as this one did, the politicians wait for one of the party leaders to patch together a new coalition that can command a 90-vote majority in the Folketing.

The stage for Wednesday's deadlock was set when Mr. Schluter's four parties and an allied centrist party, the Radical Left, or Radical Liberals, won only 81 seats.

At the same time, a rightist group, the Progress Party, dis-

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HART AIMED TO 'HAVE IMPACT' — Gary Hart in his first television interview since withdrawing as a Democratic presidential candidate in May. He told ABC's Ted Koppel that he had 'no plans' to re-enter the '88 race but would 'try to have an impact.' Page 2.

## Portugal Might Consider Scrapping U.S. Base Pact

By Paul Delaney

New York Times Service

LISBON — Angry over the level of U.S. aid the country is receiving, Prime Minister António Cavaco Silva has said he would consider scrapping a longstanding treaty that allows the United States to lease an air base in the Portuguese-owned Azores Islands.

Mr. Cavaco Silva said in an interview that the United States had reneged on an accord that provided for increased economic aid in return for continued use of Lajes Air Force Base.

"Aid was supposed to be increasing, but instead it's been declining," he said. "We may ask for an annulment of the agreement next year if we don't get more aid."

In addition, Mr. Cavaco Silva said, there were "other problems in the relationship with the United States." He said he was concerned about a drop in American imports of Portuguese textiles and steel.

Trade between the two countries in general has been on the decline in recent years. Imports from the United States dropped 25 percent between 1985 and 1986 while exports to America fell 15.7 percent.

A U.S. diplomat said that in the last two years funds had dropped

below the annual \$205 million that Portugal had been receiving because of congressional cuts in foreign aid.

In addition, the official said, Mr. Cavaco Silva's concern is that a trade bill pending in Congress, aimed at Japan, would also affect imports of Portugal's textiles and steel.

Portugal has been mentioned as an alternative if U.S. planes and troops are evicted from Spain. Negotiations are scheduled to resume in Madrid this month over the future of American forces in Spain. Talks have been stalled for months because of Spain's insistence that F-16 jets based outside Madrid be removed from the country.

Mr. Cavaco Silva was elected in July with 54 percent of the votes, a mandate that seems to have emboldened him, his critics and diplomats said.

An American diplomat said that he had noticed a strain of nationalism in Mr. Cavaco Silva and that he was "more assertive, perhaps prickly — he uses the word 'sovereignty' a lot." He added that he expected the prime minister would "continue to ask for more than he will get."

In the interview last week, Mr. Cavaco Silva mentioned Portuguese national interests several times.

"We will defend our interests," he said. "There are some bilateral problems between Portugal and the U.S., for example, compensation for Lajes. But we will defend our interests."

The current treaty was renewed in 1982 after a year of negotiations. Secretary of State George P. Shultz signed the seven-year accord, which provided \$1.32 billion in aid over the course of the treaty — money that Mr. Cavaco Silva said has been declining.

In the July election, the prime minister's Social Democratic Party became the first to gain a majority of the 250 seats in parliament and will govern without a coalition partner.

Mr. Cavaco Silva is an economist whose previous government was brought down by a censure motion in April after 18 months in office. He said the voters had spoken clearly that they approve of his brand of government and of his plans to overhaul the economy by denationalizing industries, to rely more on private enterprise and cut government spending, to change labor laws that almost guarantee workers jobs for life regardless of productivity, and to reform obsolete farm practices.



Thurgood Marshall

## Judge Assails Reagon on Civil Rights

By Stuart Taylor Jr.

New York Times Service

WASHINGTON — Justice Thurgood Marshall of the U.S. Supreme Court in a highly unusual public criticism of a sitting president, had said in a television interview that Ronald Reagan ranked at "the bottom" among U.S. presidents in terms of racial justice.

In the interview, to be broadcast Sept. 13 in the United States, Justice Marshall said of Mr. Reagan:

"Honestly, I think he's done with Hoover and that group. Wilson. When we really didn't have a chance." The word "we" was a reference to black people.

Justice Marshall, 79, confirmed Tuesday that he made the remarks in an interview with the columnist Carl Rowan. But he did not elaborate on his criticism of Mr. Reagan.

The justice, once a leading civil rights lawyer, is the only black ever to serve on the court. In his court opinions, he has sharply criticized the administration's positions on civil rights and other issues.

The chief White House spokesman, Marin Fitzwater, rejected on Wednesday the justice's criticism of Mr. Reagan. The Associated Press reported: "The president has an outstanding civil rights record, in six years of this administration," Mr. Fitzwater said. "And I can't understand his remarks, frankly."

[He added that Mr. Reagan's actions on civil rights had been intended to strengthen the law.]

No sitting member of the Supreme Court in recent memory has publicly criticized a sitting president.

See MARSHALL, Page 6

## French Company Investigated in Sale Of Military Technology to the Soviets

By Jacques Neher

Special to the Herald Tribune

PARIS — An international body that monitors sales of sensitive technology to East bloc countries has begun an investigation into a French company's sale of sophisticated computer-milling machines to a Soviet shipyard several years before similar sales were made by a subsidiary of Japan's Toshiba Corp.

Toshiba has admitted that a sub-

sidiary, Toshiba Machine Co., in

Japan, spokesman for the U.S.

delegation to COCOM.

He said the Paris-based COCOM wants to know why the Industry Ministry and the Trade Ministry granted export licenses that allowed Rater-Forest to ship several five-axis milling machines to the Soviet Union, even though such sales were likely to have been prohibited by the organization.

He said responses by French au-

thorities to the inquiry "were not

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Mallart said, it is their vulnerability to pressure by more powerful neighbors and economic circumstances.

Only the Grand Duchy of Luxembourg, a minor military power with an army of 400 men, a population of 369,500 and a relatively large territory of 2,586 square kilometers, has found a degree of security and political clout through its membership in the European Community and the North Atlantic Treaty Organization. "We are always used to being the

See NATIONS, Page 6

## Small Talk: 6 Dots in Europe Try to Put Things in Perspective

By Barry James

International Herald Tribune

ANDORRA LA VELLA, Andorra — Six countries that loom modestly on the map of Europe are meeting in Andorra this week to examine the proposition that small really is beautiful.

Once much of Europe was like that — city-states, fiefdoms, principalities and duchies. Four that survived — Andorra, Liechtenstein, Monaco and San Marino —

## Protests, Reflecting Turmoil in U.S. Church, Await John Paul

New York Times Service

**NEW YORK** — People who admire Pope John Paul II, people who do not, and people who see a chance to make a buck have all geared up for the pope's 10-day cross-country tour, which began Thursday when he steps off a jetliner called "Shepherd One" at Miami International Airport.

For millions, the U.S. tour will be a peak of their spiritual life, a chance to see the Holy Father, the successor to Peter, the leader of 840 million Roman Catholics around the world.

People angry with the pope are also preparing for his visit.

Women, priests, homosexuals, blacks, Hispanics and other groups of Catholics are planning to let the pope know what is on their minds, through demonstrations or through prepared statements.

Several minorities within the church, such as black and Hispanic Catholics, feel the church needs to be more sensitive to their cultures and give them a larger voice.

The messages all these groups plan to deliver reflect the turmoil within the broader American church. Large numbers of the United States' 52 million Catholics disagree with the church's stands on birth control, homosexuality and the ordination of women, among other issues.

The pope is unquestionably aware of such grievances, but the groups see his visit as a special opportunity to dramatize their messages again.

Women's groups have already started demonstrating at the Vatican's diplomatic mission in Washington. These protests will continue in Washington and along the pope's route.

Homosexual rights groups in San Francisco will demonstrate against the Vatican's 1986 statement that homosexuality is "an intrinsic moral evil."

Jews not mollified by the meeting Sept. 1 in Rome between Jewish leaders and the pope are planning protests in Miami and San Francisco.

Meanwhile, entrepreneurs have blanketed the papal route with "I Saw Pope John Paul" T-shirts and buttons, as well as more unusual fare, such as a \$55 lawn sprinkler in the shape of the pontiff ("Let Us Spray") and \$1.79 pope masks, complete with miter.

One national organizer estimates that 20 million

people will see the pope at motorcades, football stadiums, auditoriums and cathedrals.

In Florida, the pontiff's one-day stay, which includes a few minutes with President Ronald Reagan, will cost, at a conservative estimate, \$3.5 million, or nearly \$4,000 a minute, church officials say. Archdiocese spokesmen say the only public money involved is for security.

For those making the preparations, the trip is a logistical nightmare, covering 9 cities in 10 days, as well as a quick excursion into Canada's Northwest Territories.

Highways will be turned into giant parking lots. Office workers will be sent home early. Schools will be shut for the day. Field hospitals will be set up by the dozens, water stations by the hundreds and portable toilets by the thousands.

John Paul, in his effort to reassert the orthodoxy of the Roman Catholic Church, has made his views known on most of the issues that have been roiling for years inside the American church. But that does not deter many of the groups that await him.

"We believe essentially that the church can change and the pope can change, and that the pope will be open to ideas if we can get his attention," said Sister Jeanne Grammick, a member of the board of the Coalition of American Nuns, who has been urging the church to ordain women as priests.

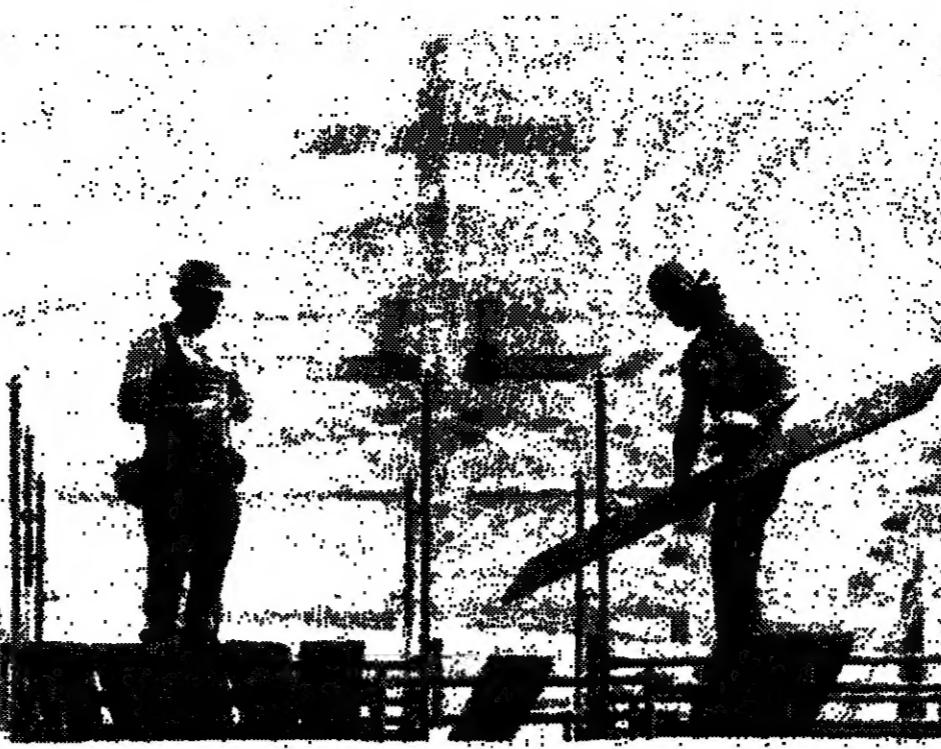
"If you take the long historical view," she added, "you realize that the church has changed over the centuries, but it takes a long time."

The status of women in the church is one of the most widely debated issues among American Catholics. A sizable number of American Catholic women, perhaps a majority, say they are displeased that women are excluded from key roles.

The church teaches that Jesus, whose apostles were men, reserved the priesthood for men.

"Women's ordination is the crux of a lot of issues," said Sister Jeanne. "We can't be in decision-making in the church because that's closed to you."

Mary E. Hunt, a theologian who is co-director of Women's Alliance for Theology, Ethics and Ritual, argues that because women are excluded from the priesthood, their experience cannot be brought to bear on the church's positions on abortion, birth control



Workers in Hamtramck, Michigan, preparing for the pope's visit to the Detroit area.

and surrogate motherhood, all of which the church opposes.

In San Antonio, Los Angeles and Miami, the pope will be seen by large numbers of Hispanic Catholics. The Reverend Vincento O. Lopez, associate director for Hispanic Affairs of the national bishops' conference, says a primary concern is the success that Pentecostals, evangelicals and other Christian groups are having in proselytizing among the 17 million Hispanic Catholics in the United States.

Ethnic sensitivity is also a dominant issue for the nation's 1.3 million black Catholics. James P. Lyke of Cleveland, an auxiliary bishop, says blacks are trying to win acceptance of traditions including hymns borrowed from black Baptists and a more emotional worship style.

Other concerns of black Catholics include a desire for more black priests and bishops. Among the nation's 11 black bishops, only one, Bishop Joseph L. Howze of Biloxi, Mississippi, heads his own diocese.

## Reagan, Rousing Finish In Mind, Lists His Goals

By Martin Tolchin

New York Times Service

**WASHINGTON** — President Ronald Reagan, saying he wants to end with "a good curtain call," has outlined his agenda for his remaining 16 months in office. He set as his primary domestic goal the Senate's confirmation of Judge Robert H. Bork to the Supreme Court.

At a meeting Tuesday of senior administration officials, Mr. Reagan said that his other priorities included an arms control agreement with the Soviet Union, the restoration of "true democracy" in Nicaragua, a budget-balancing constitutional amendment, the right to veto specific budget items while approving the rest of a bill and an "economic bill of rights" that would stress cutting over some government activities to the private sector.

The president was silent, however, on some topics at the heart of the conservative agenda on social issues. These include a proposed congressional ban on federal funds for abortion, a constitutional amendment to allow officially sponsored prayer in public schools and a revision of welfare laws that would give



Prime Minister Ingvar Carlsson of Sweden met Wednesday with President Reagan, the first visit by a Swedish leader to the White House since Tage Erlander in 1961.

the states greater latitude in administering funds.

Mr. Reagan said he hoped that the rest of his term would reflect a show-business maxim: "The whole philosophy was, when you come to town, open big. And now, well, it's time for an even bigger finish, and a good curtain call."

"On the domestic side," he said, reading from a prepared text, "we face one more important task, and no more important task. I should say, than securing the confirmation of the Supreme Court of Judge Robert Bork."

Mr. Reagan predicted "a tough fight" but said, "I'm convinced that in the end he will be confirmed."

The president was equally emphatic about his commitment to continued aid to the rebels fighting the government in Nicaragua, despite opposition on Capitol Hill.

"We will not accept a mere semblance of democracy," he said.

"We got to this point through efforts of the over 15,000 freedom fighters struggling, and some of them dying, for freedom for their country."

The president noted that the United States was engaged in "intensive negotiations" with the Soviet House spokesman, said it is "very

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## OPINION

## INTERNATIONAL HERALD TRIBUNE

## Status Quo for Germans

Erich Honecker is visiting West Germany, the first East German leader to do so. Not long ago that would have been unthinkable. Now the visit, while historic, seems perfectly natural. It demonstrates that after decades of political conflict the two Germans have come to accept the status quo: a divided Germany, with a special relationship between the two states and with both playing central roles in opposing alliances.

Neither Washington nor Moscow tried to stand in the way. They, too, have grown comfortable with the broad outlines of the status quo. This opens the way for the relationship between the two Germans to evolve in practical and humane ways without upsetting the European balance.

The bonds between these two states are as thick as blood — as Mr. Honecker's itinerary shows. He is visiting his sister in his old hometown. This is the sort of tie that keeps the idea of reunification very much alive in West Germany; indeed, that idea is embedded in the constitution there.

Yet no one is more aware than the West German leadership of the qualms that reunification raises, particularly in the rest of Europe. Thus the West German chancellor, Helmut Kohl, speaks to Mr. Honecker of taking down the Berlin Wall, whose construction Mr. Honecker directed, yet Mr. Kohl hardly believes that the wall, or the division it symbolizes, will soon disappear.

— THE NEW YORK TIMES

## Bad Times for Gadhafi

It has been, fortunately, a bad summer for Moammar Gadhafi. Chad, a country which the Libyan leader has tormented for years, spent August reducing his army and prestige to tatters. Showing that its victory of last March was no freak, the government of Hissene Habre took back the disputed Aozou border strip that Libya had annexed 14 years earlier. Chad then carried the war to Libyan soil for the first time, devastating a base from which Colonel Gadhafi had launched his depredations.

In the case that Chad's armed forces had help in becoming more than the ragtag band of one of the more impoverished and tribally divided countries in Africa. The French, playing a discreet and useful patron's role, have armed and trained their former colony's forces and have kept some of their own men and forces on the ground as well. The United States has provided lesser amounts of military aid. Still, there need be no apologies: All of this foreign stiffening did no more than put Chad in a position to defend itself against a government that is led by a certified rogue and is armed, massively, by the Soviet Union.

The war has produced its own black hu-

er. Retaliating against the recent thrust into Libyan territory by Chad, Libya set out to bomb Chad's capital of Ndjamena, 1,000 kilometers (600 miles) from the border. French air defense forces shot down one of the bombers, whereupon the Libyans denounced those with the effrontery to "attack" its bombers. In fact the French have been careful to limit their mission in Chad; they did not approve of the reconquest of Aozou and separated themselves from Chad's in-and-out incursion into Libya proper.

In matters involving Colonel Gadhafi, it is prudent to be wary. He has not been altogether reduced to size, but the fact is, it has been downhill for him since the United States responded to his association with international terrorism and launched its air attack of April 1986. Chad added useful insult to this injury. To be bombed by a great power was one thing, although there was for Libya the additional sting of having the act condoned by most of those it had expected to protest. To be humiliated by a seemingly puny and helpless victim is quite another thing. Other countries he has despoiled, mesmerized and intimidated will notice.

— THE WASHINGTON POST

## Greenspan Tightens Up

Alan Greenspan, the new chairman of the Federal Reserve Board, took a necessary first step on Friday when the board raised interest rates by half a percentage point. For nearly a month since he took office there had been much speculation in the financial markets whether he would dare to tighten up. A presidential election campaign is getting under way, and high interest is not popular. But the dollar's exchange rate was falling, and fears of inflation were rising. That is why the Federal Reserve acted. The next question is whether an increase of half a point is enough to hold the dollar steady.

It is certainly not going to be enough. If President Reagan cannot end the deadlock with Congress over the budget for the fiscal year that begins in three weeks, under present policy, the Congressional Budget Office has persuasively warned, the federal budget deficit is about to start upward again. A bigger budget deficit is a force for more consumption, drawing more imports into the U.S. market and increasing the other deficit — the one in the foreign trade accounts. There is a direct relationship between the two deficits. They have soared upward together in the last five years, and they are going to have to come down together.

If they come down, Mr. Greenspan can relax. The pressure will be off. But if they stay high, the dollar will continue to be in

danger. The Federal Reserve Board's job is to preserve the dollar from those twin threats, inflation at home and a falling exchange rate abroad, each of which aggravates the other. Even after Friday's increase in rates, Mr. Greenspan has no margin for error. The consumption boom has brought unemployment down much faster than most people expected at the start of the year; it is now 6 percent of the labor force and probably cannot go much lower without beginning to generate wage inflation.

If the whole job of restraining inflation is left to Mr. Greenspan, interest rates will have to go a good deal higher. They are his only weapon. He will have to let them go high enough to chill consumption by Americans and to persuade foreigners to keep investing in the United States. That certainly would risk a recession.

Both President Reagan and the congressional leadership need to keep that in mind as they come back to Washington and return to their unfinished budget. They share the responsibility to work out a rational compromise, but the greater part of that responsibility is Mr. Reagan's. He is, after all, the president. If he fails, and budget policy is left to the automatic pilot, Mr. Greenspan's decision on Friday suggests the direction he is likely to take.

— THE WASHINGTON POST

## Overdue Tennis Lesson

For years John McEnroe screamed and cursed his way through tennis matches, and the craven tennis establishment gave in. Last weekend, in the person of a 22-year-old Australian umpire named Richard Ings, the sport finally grew some self-respect and struck back. For once the parable of the brat had the right ending. It was the best thing that had happened to decent behavior in years.

Mr. McEnroe was up a set and service break in his third-round U.S. Open match against Slobodan Zivojinovic of Yugoslavia, and serving for the second set at 5-3, when he had what he regarded as several hard calls. He lost the game and his self-control and went into his familiar tirade at the expense of Mr. Ings, who was in the chair.

The officials on whom Mr. McEnroe has heaped such abuse in the past have often been amateurs, local volunteers whom he

could bully with impunity. But Mr. Ings turns out to be a professional, one of five full-time umpires now on the tour. He gave Mr. McEnroe a warning, and when that didn't work he assessed him a penalty point and eventually took away a full game and the set. Under the rules, the next outburst would have cost Mr. McEnroe the match. Wonder of wonders, he shut up. Deterrence works. He also began to play better tennis, and eventually won. Mr. Zivojinovic applauded him as they came to the net to shake hands. The show of good sportsmanship was jarringly in contrast to what it provided.

Mr. McEnroe will apparently be suspended for two months. That will interrupt a comeback and could end his career. No one can rejoice in a result like that, but the lesson can only be healthy. Games send messages in the kinds of behavior they tolerate.

— THE WASHINGTON POST

## INTERNATIONAL HERALD TRIBUNE

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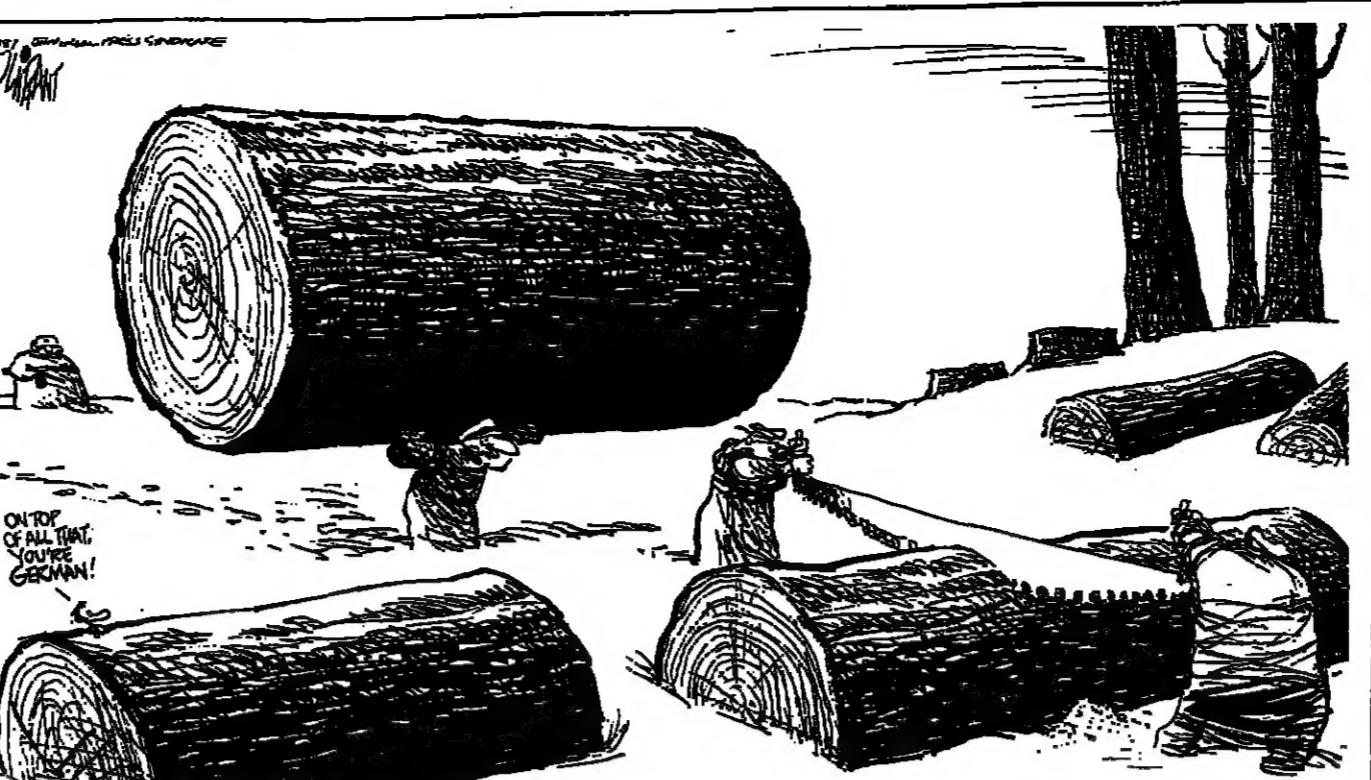
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'Look at the bright side. You fly into Red Square, you make their defense system look ridiculous, you infuriate the military and everyone else — and you still only get four years!'

## An International Trusteeship Might Rescue Haiti

By Arthur Schlesinger Jr.

**N**EW YORK — What a collection of fakes we Americans are! We endlessly proclaim our devotion to democracy and human rights. We endlessly rebuke the rest of the world for failing short of the high standards of liberty and probity that we unfailingly achieve ourselves (or do we?).

And with our self-congratulatory habits of the heart and undiminished lack of self-knowledge, we overlook the fact, evident to others that our concern for democracy is, to say the least, partial and selective.

So we block a peace settlement in Central America because of our alleged commitment to the future of democracy in Nicaragua and its notorious Tonio Macoutes, and his voodoo doctors, the Haitian people, already miserably poor, undernourished and demoralized, were reduced to almost hopeless passivity.

The tyranny rested on terror and magic. Between Papa Doc's practitioners of official things, the notorious Tonio Macoutes, and his voodoo doctors, the Haitian people, already miserably poor, undernourished and demoralized, were reduced to almost hopeless passivity.

There was a small and gifted class of educated Haitians — economists, writers, painters — but they were mostly driven out or killed during the Duvalier years. Today the economy is in ruins. Per capita income is a good deal less than it was two centuries ago. Haiti is far and away the poorest country in the Western Hemisphere.

Finally Haitians could take the Duvaliers no longer. In February 1986, Baby Doc, who had optimistically

styled himself president-for-life, fled. A provisional government was established. But, led by a Duvalierist general, it tried to protect survivors of the old regime and rapidly lost whatever moral authority it might have enjoyed.

Conditions have been steadily worsening. The country is sinking into chaos. The fabric of its society is disintegrating. In the meantime, so far as one can tell, the American government, media and people regard this developing tragedy with sublime indifference.

An administration in Washington that not long ago was inordinately pleased with itself for having saved the 100,000 inhabitants of Grenada from unspecified terrors today ignores the smarthy threatening five million Haitians. U.S. policy is to keep sending a flood of military aid and a trickle of economic aid to an interim government that few Haitians like or trust.

President Reagan, so pious and vulnerable on Afghanistan's woes, is silent on Haiti. If only there were the threat of a communist takeover! But the Soviet Union has troubles of its own; does it want to accept Haiti as a gift?

Haiti was once one of the most prosperous islands in the Antilles. It

style but eloquent reproach to our vainglory. Can we not show as much solicitude for human rights in Haiti as for our liberals show for human rights in El Salvador and our conservatives for old, tired, and uninteresting.

What can we do something to avert a catastrophe unfolding on our doorstep?

The answer is not easy or obvious, but that does not excuse reluctance to confront the question. No one wants to return to a United States military occupation. But how about a multinational rescue mission undertaken through the Organization of American States or the United Nations?

The underlying reason for Israel's new impotence in Washington, in my view, is in information still being developed at the Justice Department.

The festering Jonathan Jay Pollard spy case, and the refusal of Israel's aging leaders to face up to the urgent need to treat the source of infection, make possible the defeat of Israeli economic and terrorist and strategic arguments all through the U.S. government.

Pollard? Wasn't the American traitor who was hired to provide a roomful of secret documents to Israel convicted and jailed? Wasn't the Israeli general who handled the operation indicted in America and induced to resign his air force commission? Most Americans and Israelis think the story ended with that, and with the absolute guarantees from the Shamir-Perez coalition that such spying has stopped.

But the Pollard case is far from over. While the jailed spy is conveniently forgotten by the government that used him two prominent former Israeli officials remain protected by a fearful political establishment.

Rafi Eitan and Avraham Bendor are legendary figures in the world of espionage. Together they led the team that kidnapped Adolf Eichmann in Buenos Aires in 1960 and brought that war criminal before the bar of Israeli justice. Eight years later, the same two Mossad operatives appeared at an Apollo, Pennsylvania, nuclear processing plant. After their visit, 587 pounds (266 kilograms) of weapons-grade uranium was reported missing.

Mr. Bendor, using the alias "Avraham Shalom," rose to the top of the internal security service, Shin Bet. When a news photograph provided evidence that his men murdered a couple of Palestinian terrorist prisoners, his agency was caught trying to frame an army commander; however, Mr. Eitan and his aides resigned and received a presidential pardon.

Rafi Eitan did fairly well, too. He headed Likem, an intelligence unit set up outside Mossad to provide deniability for high officials, which recruited the Pollards (and perhaps another American unknown to the Pollards) to steal U.S. secrets. When the operation blew up, Mr. Eitan also resigned, and was rewarded with a top job in a state-owned industry.

To give the appearance of an investigation, Prime Minister Yitzhak Shamir — who served a decade in Mossad

— appointed a nonjudicial board which issued the expected whitewash. A Knesset committee under Abba Eban wagged a finger but could not penetrate the wall of secrecy.

However, U.S. officials who talked to Mr. Eitan under a grant of immunity believed he lied to them. As a result, a grand jury in Washington may indict him one of these days, along with two Israeli diplomats who were spied out of the United States as the Pollards were caught. Mr. Bendor is suspected of aiding the cover-up of his sidekick's "renegade" activity.

None of the Israeli's charged with espionage in America will be returned to stand trial; instead they will continue to be protected by a coalition of cover-up in Jerusalem that puts a personal fear of the exposure of ministerial involvement ahead of the long-term security interests of the state.

What has the unconscionable stone-walling done for Israel? Let's see. Air-traffic controllers are unemployed, Syria's President Assad is rehabilitated, objections are muted to the pro-Arab tilt in the Gulf war. Israel's supporters in the United States are sick at heart — and that's only the beginning.

The New York Times

The attempt by the Cambodian Documentation

## Put the Khmer Rouge in the Dock for Genocide

By Jonathan Power

**L**ONDON — Every year the United States and most of the rest of the world vote at the United Nations to continue recognizing the Khmer Rouge regime led by Pol Pot as Cambodia's legal government. That overthrown regime was widely considered one of the most murderous groups to cross the 20th century's political stage. Nevertheless, the Khmer Rouge drag files unnoticed.

I have before me records kept by the Khmer Rouge of victims killed and tortured. Like the Nazis, they were cruelly methodical. A memo from the interrogator's manual orders those in charge of torturing to get the right balance between propagandizing and torturing. It tells interrogators to keep up the victims' hopes of survival so as to make them as malleable as possible.

Eventually the Khmer Rouge were overwhelmed by Vietnamese soldiers, who still occupy Cambodia. It is a stern, austere, forbidding kind of occupation, but it ended the massacres. However, because Vietnam is an invading power it has been condemned by most members of the United Nations. Every year there is a ritual vote and almost every year the majority goes against Vietnam.

Who legally rules Cambodia? For want of an easy alternative, the West has decided to live with the ugly charade of recognizing the Khmer Rouge.

Not only do the Western countries through the United Nations continue to recognize the political existence of mass murderers, they supply them with surplus grain through UN relief operations and the World Food Program.

The attempt by the Cambodian Documentation

Commission to have the genocide charge taken up by the World Court will force the rest of the world to consider its responsibility more clearly.

It is possible not to recognize any regime as the government of a country, as is the situation with the United States and Angola.

Why have the genocides convention if it is never to be used? When it was negotiated and agreed on in 1948 it was seen as the embodiment of the international commitment that never again should such an unspeakable atrocity as genocide be allowed to go unpunished.

Only governments can initiate action before the World Court. The Cambodian protest group has been lobbying Western and Southeast Asian governments to bring the Pol Pot case before the court. Washington and the European Community say they are considering it. Australia has indicated that it may initiate the action if it has the support of at least one Southeast Asian country. This case should have the unequivocal support of all who believe in the rule of law.

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# Why Israel Are Losing In America

By William Safire

**WASHINGTON** — I have never seen Richard Longshore, but I like to imagine that the California assemblyman is ruggedly built for the physical defense of liberty and freedom from the rhetorical defense of it. During the debate on a bill to ban smoking on public transportation in California, the chain-smoking legislator said: "I think this is really a civil rights issue. First you say, 'Smokers get to the back of the bus.' And now you're telling smokers to get off the bus."

This was not received politely by anti-smoking activists. They increasingly resemble the man essayist Joseph Epstein says could not be described as insincere because he was permanently insatiable.

But opponents of smoking on airlines are right. The science is clear and so, therefore, is the ethics of the matter.

The most hazardous aspect of air travel, aside from the drives to and from airports, is breathing cabin air. Inhalation of smoke by smokers is America's largest single preventable cause of death and disability. For nonsmokers closely confined with smokers, as happens in airplanes, smoke exhaled by smokers is bad. Even worse is "sidestream smoke" that comes from a cigarette's burning tip between puffs. The temperature of combustion is then lower than during puffing and produces more pollutants.

Smoking on airplanes intensifies in bursts when the "no smoking" light goes off, producing high concentrations of pollutants. The separation of smokers and nonsmokers in planes in which air is recirculated does little to protect nonsmokers. Carbon dioxide and carbon monoxide, both increased by smoking,

accumulate in the dry cabin air. To counter the effects of "passive smoking," a passenger needs 50 to 75 cubic feet (1.4 to 2.1 cubic meters) of clean air per minute. You generally get a maximum of 20.

Flight attendants inhale smoke at the rate of a person living with a pack-a-day smoker. They are starting to file worker's compensation claims and suits about illness caused by long-term exposure to cabin smoke. The legal vulnerability of airlines will increase after forthcoming studies of the metabolized residue of nicotine in nonsmoking flight attendants.

Smoking increases maintenance costs.

I'm often smoke — up to 200 pounds (90 kilograms) a year — clogs valves and instruments. A 10-year-old jumbo jet burns thousands of extra gallons of fuel a year because of the weight of the plume.

Dick Durbin, an Illinois Democrat, showed through the House a measure that would ban smoking on flights of two hours or less — 90 percent of domestic flights. His measure would do this good deed by denying development funds for airports that permit landings of airplanes that allow smoking on such flights. Mr. Durbin had to use an appropriations amendment rather than a straightforward prohibition on smoking because a prohibition would have had to pass the Public Works and Transportation Committee. That committee is chaired by an opponent of Mr. Durbin's measure, Jim Howard, a New Jersey Democrat who, Mr. Durbin says, has been a heavy smoker and is fighting the habit, but

smokes 34 known carcinogens.

Then you cannot swing a cat by the tail these days without banging its head against someone who wants to regulate or ban behavior that he disapproves of. But the anti-smoking movement is merely self-defense by innocent bystanders.

Washington Post Writers Group.

## Foes of Smoking on Airliners Are Right

By George F. Will

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Washington Post Writers Group.

## LETTERS TO THE EDITOR

### Spreading the Blame in Southern Africa, and Elsewhere

In two front-page articles on the economic problems of Mozambique and Angola (Sept. 2), the country of South Africa was mentioned only once.

The report "Rebellion Leaves Mozambique a Stricken Country" fails to mention South Africa all in discussing what has destroyed Mozambique's economy. It calls a "civil war" what is in fact a continual attack on Mozambique by the government of South Africa using mercenaries. Without the support of South Africa, the Mozambique National Resistance, Renamo, would not exist.

The report does, however, manage to mention Cuba, the Soviet Union and East Germany as supporters of Mozambique.

The other article, "Oil Money Shields Angola From Job of Fiscal Reality," sees fit to mention South Africa once, but without indicating that South African military forces are making repeated attacks on Angola. Once again we read of a "civil war" and not of an organized campaign of destabilization by South Africa.

RANDALL ERICKSON  
Paris

The Reagan administration has recently declared that there is no connection between disarmament and development. As your Sept. 2 stories on Angola and Mozambique make clear, the deaths, injuries and destruction of habitat and live-

hood, eliminating almost all hope of economic and social progress in millions of people throughout the so-called developing world, is a direct consequence of the sale or gift of unbelievable quantities of weapons by the developed countries.

This lethal hypocrisy was well illustrated recently when the five permanent members of the United Nations Security Council demanded a cease-fire in the Iran-Iraq war. The five, along with client states, supply the bulk of the weapons that permit the insanity to continue.

STERLING DOUGHTY.  
Geneva.

### Life-and-Death Numbers

Lewis Fry Richardson's work on arm races and wars deserves more than the casual mention by Barry Jones in "Improving Forecasting by the Numbers" (July 30). Mr. Richardson's studies constitute the foundation of a small but growing scientific literature on arms race dynamics and conflict.

His two major books on these topics, "Arms and Insanity" and "Statistics of Deadly Quarrels," were published in the United States by American scholars long after his death. In the 1930s and '40s, the application of mathematics and statistics to the problems of war, peace and security was not taken seriously and was

considered too esoteric to be published. Yet Mr. Richardson was the first, to my knowledge, to demonstrate with considerable accuracy how even defensive moves made by nations to improve their security could lead them into the vicious cycle of armament escalation. The consequences of this process are still with us today and underlie the debates surrounding the Strategic Defense Initiative and the disarmament negotiations.

Mr. Jones also mentions the work of John von Neumann who, as the main creator of game theory, provided scholars working on problems of war, peace and conflict with the theoretical foundations and analytical tools to explore some of the ideas set forth by Mr. Richardson.

Mr. Richardson, like Mr. von Neumann, made fundamental contributions to a wide range of fields, from meteorology and hydrodynamics to issues of war and peace. The scope and results of Mr. Richardson's work qualify him as a pioneer and a major scientific figure of the first half of the 20th century.

URS LUTTERBACHER.  
Graduate Institute of International Studies.  
Geneva.

Natalia Novik (Letters, Aug. 25) is unduly pleased with gloom. She does not appreciate that nuclear as current

## GENERAL NEWS

### Moscow's Decision on Radar Site: Opening the Door for Political Gains

By William J. Broad  
New York Times Service

MOSCOW — Although possibly providing new ammunition for those who charge it with treaty violations, the Soviet Union has taken the surprising step of opening a disputed top-secret radar installation to Western inspection to show its willingness for an East-West accord at a critical time in arms control.

The Kremlin, in making its decision to open its Krasnoyarsk site to a congressional delegation over the weekend, seems to have calculated that the gains would outweigh any political or military losses.

The Reagan administration has insisted for years that the party built "phased array" radar station violates the 1972 anti-ballistic missile treaty, and Washington has often cited this as one of the more egregious examples of Soviet cheating on treaties.

In opening the installation for inspection, Moscow has not succeeded in putting an end to the charge, but it has made itself seem more interested in resolving the vexing radar issue than in risking the failure of the ABM treaty.

A clear political risk is that the Reagan administration might ignore the bid for a dialogue and simply cite the new Krasnoyarsk findings as evidence to back up its charge.

The inspection indicated, however, that the worst fears of American military experts about the site appear to be unfounded.

Although the half-built radar clearly raises questions about Moscow's adherence to the letter of the ABM treaty, close inspection suggested the site is more benign than incendiary — that it is potentially a mediocre early-warning radar rather than a hardened bunker for coordinating anti-missile war.

The Soviet decision was also probably influenced by arms-control advocates in the United States who vigorously lobbied for the disputed site to be opened.

More than a year ago, the Natural Resources Defense Council, a private group based in New York, raised the issue in meetings with Soviet officials. The group runs a program to monitor the Soviet nuclear test site in Soviet Kazakhstan and has good access to Soviet officials.

In April, Representative Thomas J. Downey, Democrat of New

York, also pressed Soviet officials in Moscow about the radar.

Mr. Downey and the Natural Resources Defense Council eventually joined forces in a weeklong trip to the Soviet Union to pursue a variety of arms-control issues; the visit culminated in the Krasnoyarsk tour.

On one technical level, the Russians had little to lose since top-secret photos from American spy

satellites had already raised many questions about the radar's purpose.

Spotted from space more

than four years ago, the radar is clearly pointed northeast — a direction well suited for tracking enemy warheads, at the very least for early warning of nuclear attack, and possibly for help in waging defensive wars meant to destroy enemy missiles and warheads, an ABM application known as battle management.

But inspection showed the site to be half-built and shoddy, apparently with no future as a hardened bunker for waging anti-missile war.

At best, it might someday be a ham-fisted early-warning radar with some limited satellite-tracking capability.

One of Moscow's potential

losses in the visit involved the breach of military secrecy. A major goal of hiding what seem like mundane facts about military hardware is to deny potential foes firm knowledge of the strengths and weaknesses of a nation's war machine.

In an unusual break with such

principles, the American delegation that toured the site was allowed to take more than 1,000 photos inside and outside the giant radar, many of which will undoubtedly be subject to detailed analysis by the Pentagon. Moreover, that flood of information could reveal a kind of blueprint to many other Soviet installations, since the Krasnoyarsk radar is similar to several "phased array" radars under construction in the Soviet Union.

Even so, having seized the initiative by opening the site to foreigners, the Soviet Union now stands ready to score political points.

Most importantly, increased candor over Krasnoyarsk seems to be

speak a desire to stop the erosion of the ABM treaty, ostensibly a long-term Soviet goal based on its opposition to President Ronald Reagan's "Star Wars" anti-missile program.

### U.S. Delegation Not Sure if Radar Breaks ABM Pact

New York Times Service

WASHINGTON — Three congressmen and several experts who visited the Soviet radar site at Krasnoyarsk last week said Tuesday that they were unable to determine whether the installation violated the 1972 anti-ballistic missile treaty.

The State Department repeated the Reagan administration's contention that the radar did in fact violate the ABM treaty.

The returning delegation praised Moscow for opening the site to inspection and said the two years or so before the radar becomes operational provided the United States with an opportunity to negotiate a resolution to the dispute.

The Reagan administration, citing the 1972 treaty's ban on anti-missile radar that could be used for battle management in a nuclear war, has dismissed the Soviet assertions that the Krasnoyarsk radar is to be used for space tracking.

The State Department spokesman, Charles E. Redman, said Tuesday that the administration stood by its assessment. "We see no evidence in the information available now," he said, "which would alter our conclusion that the radar under construction at Krasnoyarsk constitutes a violation of the ABM treaty."

## OPINION



### Titanic: Back to the Spot Where the 1,500 Froze

By William F. Buckley Jr.

**A BOARD L'ABEILLE SUPPORTER** — The tender vessel is bound for the spot where the Titanic sank on April 15, 1912. It carries aboard, from the little French island of St. Pierre just south of Newfoundland, half a dozen of the entrepreneurs who make up the U.S. end of the expedition devoted to lifting from the floor of the ocean down 3,800 meters (almost two and a half miles), artifacts and memorabilia from the Titanic.

There is the tension one might expect in returning to the business of diving deep into the ocean, deeper by far than any submarine can travel. And there is

#### MEANWHILE

additional tension.

Although all the tradition of salvage adamantly affirms that the operation could proceed with the kind of self-assurance one associates with the salvage operations in a years gone by have found gold and diamonds and frankincense and myrrh off Bermuda, Florida, Peru and indeed everywhere in the world where storms or pirates have sunk boats loaded down with treasure — despite all this, there is something different about the Titanic.

One popular legend about the Titanic is that those who were not aboard the sparse lifeboats went down to the bottom of the sea in the vessel. They didn't. In fact, the evidence is that, as they crowded the stern deck waiting for the final, exhausted plunge as the sea water, pulling in through the starboard cavity sprung by the iceberg, crawled aft toward them, they had on life preservers. They were visible to the survivors in the 20 lifeboats and rafts. When the Titanic went down, its crew and passengers floated up under the buoyant imperative of their life preservers, including the musicians who were playing in the main saloon of the great ship went down.

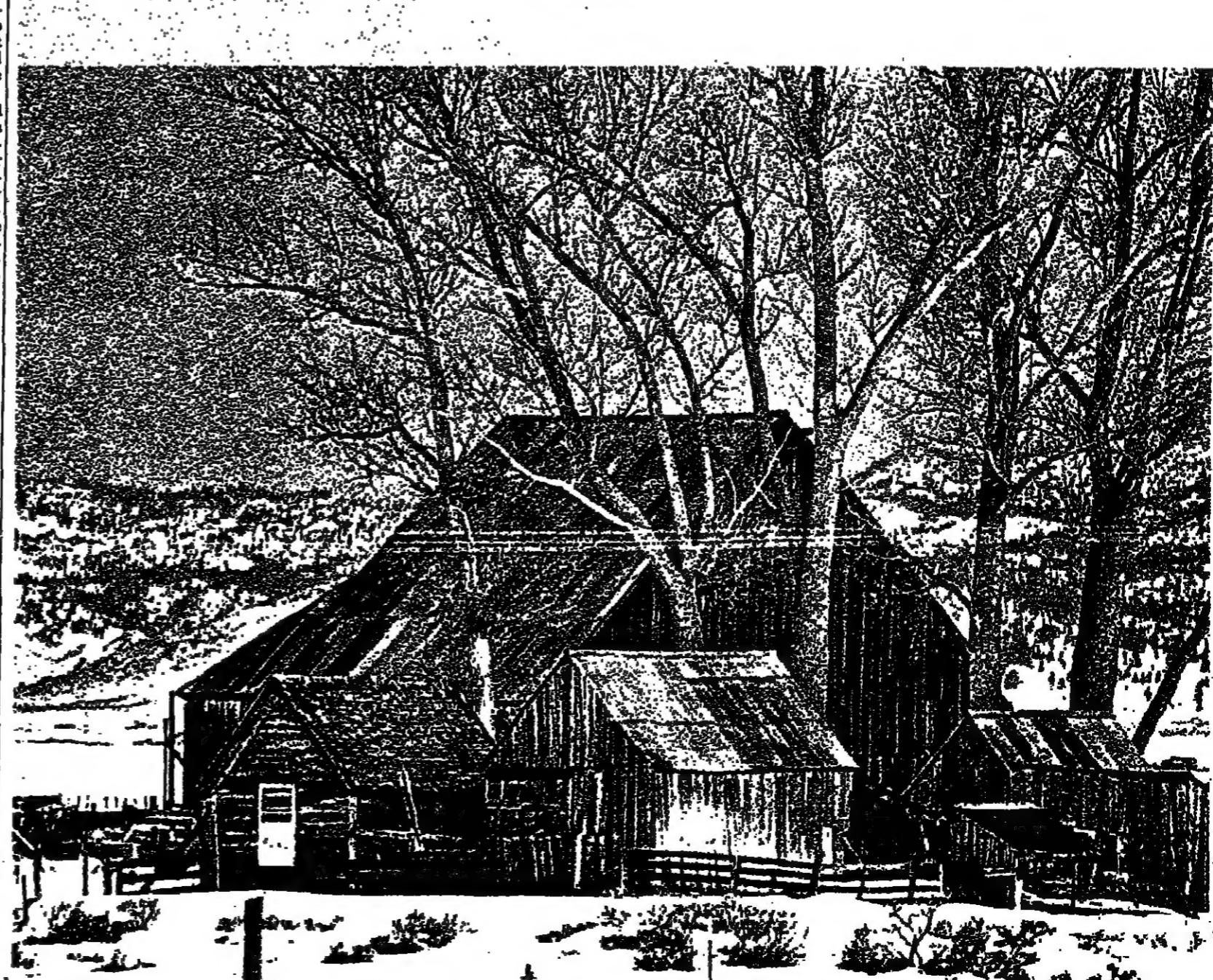
One hopes there were wise men among them who thought to ditch their life preservers, because that way they would have died within a matter of minutes. As it happened, they floated up from the descending ship in a tight circle around the spot where the ship had沉没ed from the moment the engines were turned off at a quarter before midnight until 2 in the morning, when it took its final, all but vertical dive. Instead of going down, they floated in the freezing water, and there was much testimony by the survivors to the awful walls of pain, desperation and entrapment, lasting as much as 40 minutes, as little by little the cold froze them to death — leaving forever unanswered the question: Why didn't the lifeboats, half of which were half-empty, make any effort to rescue at least a few of the survivors?

There will be no hint given of why this was so when I go down to see the remains of the Titanic.

Universal Press Syndicate

### Get a taste of Mom's pumpkin pie. Call home.

You can just see her, testing the crust with her fork, as if every pie she's ever made hasn't been perfect. Tell her this one will be great, too. Go ahead. Reach out and touch someone.®



## Sikh Priests Say Militants Have Unified For Struggle

Compiled by Our Staff From Dispatches

AMRITSAR, India — Four of the five chief priests of the Sikh religion on Wednesday declared that militant groups fighting for a separate Sikh nation in Punjab State had unified, and the priests urged followers to support the "war of liberation."

The priests said that 16 militant groups in India and abroad had achieved "complete unity" and would provide political leadership to Sikhs in place of the "discarded Akali leadership."

The statement was the strongest yet by Sikh religious authorities.

It occurred as the separatist campaign is becoming increasingly violent after the government of Prime Minister Rajiv Gandhi took over the administration of the northern state on May 11. Mr. Gandhi dismissed the moderate Sikh government of the Akali Dal, the traditional Sikh political party.

The national government reacted sharply to the priests' statement and vowed to defeat Sikh terrorism.

The priests' statement "has come as an open and direct challenge to the unity and integrity of the Indian nation," Federal Home Minister Buta Singh said in New Delhi.

The announcement was made by four of the five members of the Akali Takht, the religion's highest temporal body. It is responsible for preserving the faith and arbitrating religious disputes.

The announcement from the Golden Temple, seat of the Sikh religion, called on Sikhs worldwide to give "an man sjan, or body, soul and wealth, to the militants" decisive war for liberation." It said the Indian government was oppressing Sikhs throughout the country.

The militants claim Sikhs suffer discrimination from India's Hindus, who make up more than 80 percent of the country's more than 750 million people.

Sikhs, whose religion was founded as an alternative to warning Hindus and Islam, make up only 2 percent of India's population. But they are a majority in the Punjab, a rich farming state.

Jaswant Singh of the Damdama Sahib, a major Sikh temple, read Wednesday's announcement at a news conference.

Three other leading Sikh priests, Puran Singh, Kasturi Singh and Sawinder Singh, said they supported the statement. Singh, which means lion in Punjabi, is part of every Sikh man's name.

A formal announcement about the unification of the militants will be made by the groups soon, the priests said.

The 16 groups are known to include the Khalistan Commando Force, Khalistan Liberation Force, Babbar Khalsa and Bhindranwale Tiger Force.

The priests also criticized professor Darshan Singh, the head of the Akali Takht and fifth member of the body, for fleeing the Golden Temple on Aug. 8 after he received death threats from militants in the shrine.

On Aug. 17 the four priests had called on the militants to provide leadership for the 16-million-strong Sikh community in place of the Akali Dal.

The Akali Dal was elected to power in Punjab in 1985, but dismissed in May by New Delhi for allegedly failing to tackle the campaign for a homeland in Punjab, in which nearly 1,300 people have died since last year.

The Indian Army stormed the Golden Temple on June 6, 1984, and more than 1,000 people were killed, most of them Sikhs. The prime minister at that time, Indira Gandhi, ordered the raid to drive out Sikh militants using the temple as a refuge for attacking Hindus and rival Sikhs.

On Oct. 31, 1984, Mrs. Gandhi was assassinated in New Delhi, and police said the killers were two of her Sikh bodyguards who were avenging the Golden Temple raid. One Sikh guard was shot to death by other guards. Three other Sikhs were convicted in connection with her killing and have been sentenced to be executed.

(AP, AFP, UPI)



**EXTRADITED FANS IN BRUSSELS** — Police vans carrying 25 Liverpool football fans arriving Wednesday at the Palace of Justice in Brussels for a hearing before a magistrate on charges of manslaughter in connection with the Heysel Stadium riot, in which 39 persons were killed in 1985. A 26th fan who was scheduled to be extradited was still Britain in connection with another case, police said. The trial is expected late this year or early next.

## EXPORT: French Firm Investigated in Sale of Military Technology to Soviet

(Continued from Page 1) clear," and he added: "They are generally reluctant to talk."

COCOM's list of products that cannot be sold to Soviet bloc countries include milling machines with more than three independent axes, cutting directions. The number of axes on a milling machine determine its ability to produce complex parts.

French government authorities were not available for comment and did not return telephone calls.

In a report issued to the press in Tokyo, Toshiba said its engineers had seen a multi-axis machine made by Rater-Forest already operating at the Baltic Shipyard near Leningrad when they arrived to inspect the company's more sophisticated multi-axis machines in 1983.

U.S. investigators believe Toshiba had initially turned down requests for the milling machines from the Soviet Union, citing COCOM restrictions. They said Toshiba only changed its mind after it learned its French competitor had already shipped similar machines.

Christian Saret, an executive of Forest Line, as the French company now is known, said Wednesday that "to the best of our knowledge, all machines produced in our workshops and sold abroad have authorization from COCOM."

A former executive of Rater-Forest, who was involved in the sale, said he doubted the company broke any rules in selling the machines.

"I'm not sure these machines were ever in contradiction with COCOM," said Robert Vitrat, who at the time was sales director of Rater-Forest. He said the company delivered "at most" two of the five-axis machines to the Soviet Union in 1976-77.

He said the export license applications were approved by the industry and trade ministries, as well as France's COCOM delegation.

"As far as I remember, we had

no problem at all getting approval for that kind of machine," he said.

He added that the company was aware that the machines were going to be used at the shipyards, but that it did not know they would be used for military applications. The Soviets, he said, did not permit the company to install the machines.

One U.S. naval analyst, who asked not to be named, said: "I suspect that if they had a program to make a new generation of submarine propellers, the French equipment was a considerable help."

Mr. Vitrat acknowledged the machines may have helped "im-

prove the production and productivity" of the submarine propellers, but he emphasized that the Soviets had already designed and produced the parts on their own.

"No machine has ever invented a new propeller point," he said.

U.S. officials say the machines' final destination should have kept the French authorities from approving such a sale.

"The disturbing thing here is that if anyone said 'Baltic Shipyard' to us, we would have said 'No, never,'" said Stephen D. Bryen, who heads the Pentagon's export control office.

"I don't mean kill him," Mr. Vitrat said. Pressed, he added: "We got a feeling a little three-day invasion wouldn't make anybody unhappy down there, if you just overthrow Ortega. But that's just my guess."

Later he attempted to back off any implication that he was advocating U.S. military action in Nicaragua. He said that he did not know whether Mr. Ortega's government could be overthrown in three days and that it would be preferable if other Central American nations "can isolate Nicaragua."

Asked how far he is willing to go in seeking a military solution in the region, he said: "I'm not even suggesting that. We don't need to do that."

Asked again Wednesday about the invasion comment, Mr. Vitrat declined to repeat it. But he added, "I just said some people would not find that too offensive."

## Dole Says Call for 'a Little' Invasion Of Nicaragua Was Not Just a Quip

The Associated Press

WASHINGTON — The Senate Republican leader, Bob Dole, said Wednesday that he was not simply making a "quip" when he was quoted as saying that "a little three-day invasion" of Nicaragua would be welcomed by the people of Central America.

The Kansas Republican said that "I was just expressing an opinion" that President Daniel Ortega Saavedra of Nicaragua was not well-liked in Central America.

"It wasn't a quip," Senator Dole said. "It was a very serious view" with Milwaukee Sentinel reporters.

The senator, an announced candidate for the Republican presidential nomination, visited Nicaragua during the monthlong congressional recess that ended Wednesday. During the visit he met Mr. Ortega.

In the interview, Senator Dole suggested that Mr. Ortega is so disliked by other Central American leaders that President Oscar Arias Sanchez of Costa Rica would not object if somebody came down there and sort of blew" Mr. Ortega.

"I don't mean kill him," Mr. Dole said. Pressed, he added: "We got a feeling a little three-day invasion wouldn't make anybody unhappy down there, if you just overthrow Ortega. But that's just my guess."

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■ Senator Bob Dole

Mr. Kemp, a New York Republican who is seeking his party's presidential nomination, arrived in Honduras on Tuesday along with more than 50 leaders of conservative groups.

Mr. Kemp said the trip was also intended "to let Congress and the White House know we are not will-

ing to relax our efforts to continue aid to the freedom fighters."

The congressman, along with Senator Jesse Helms, Republican of North Carolina, is the author of a bill to provide \$310 million in assistance to the contras over the next 18 months.

Under a peace plan signed by the leaders of Costa Rica, Guatemala, El Salvador, Honduras and Nicaragua last month, cease-fires are to begin in both Nicaragua and El Salvador on Nov. 7 and outside assistance to insurgents in Central America is to stop.

U.S. officials have expressed at least lukewarm support for the peace plan. They have said that they might seek additional aid for the contras if the plan, which includes pledges by Nicaragua to declare an amnesty and lift restrictions on dissent, were to falter.

For Mr. Kemp and other conservatives, the flaw in the plan is that while it calls on the United States to halt assistance to the rebels, it allows the Soviet Union and Cuba to continue to supply the Nicaraguan government.

## Land Reform Minister Dies in Brazil Air Crash

By Juan de Onis  
International Herald Tribune

RIO DE JANEIRO — Brazil's agrarian reform minister and six top advisers have been killed in a plane crash, dealing a severe blow to President Jose Sarney's program to give land to more than one million peasants.

An air force jet carrying the minister, Marcos Freire, and the advisers crashed Tuesday evening just after taking off from an airport at Paraiso. Witnesses said the plane exploded before the crash.

Mr. Freire and Jose Eduardo Veira Raduan, superintendent of the Agrarian Reform and Colonization Institute, had been inspecting land reform sites in a region that has been the center of numerous land takeovers and rural violence.

Mr. Sarney said the accident had inflicted a "severe loss" and declared three days of official mourning. Mr. Freire, 56, a former senator from Pernambuco, was a

national figure of the governing Brazilian Democratic Movement.

Mr. Freire, a moderate, was Mr. Sarney's fourth minister of agrarian reform in less than three years. His predecessors all resigned under fire from landowners.

He was appointed three months ago to negotiate with the powerful landowner associations, which have armed themselves against peasant land invasions.

The Roman Catholic Church, which actively supports peasant demands for land, has reported the killing of more than 150 people in land disputes since 1985, including two priests and a nun.

Resistance from landowners, lack of funds and shoddy administration of the land distribution program have severely restricted Mr. Sarney's ambitious target of getting 1.4 million peasants in five years.

Mr. Freire said last week that only 17,000 peasant families had been settled under the program last year.

## DANES: Schluter to Stay On Despite Election Setback

(Continued from Page 1)

played surprising strength rallying blue-collar workers with its anti-tax, anti-immigrant message.

The Progress Party's 10 votes would give Mr. Schluter his majority, but the Radical Left refused to support him.

This would bring in a new Socialist government and amount to a dramatic repudiation of Mr. Schluter's effort, since 1982, to move Denmark toward a market economy and restrain spending on maintenance of the welfare state.

Given the high political stakes, it is hard to think of another country where such bargaining among three leaders would take place at a good-humored public luncheon.

On Wednesday at the Hotel Royal in Copenhagen, the audience laughed and the three men exchanged witticisms as Mr. Jorgensen asked Mr. Petersen to help him do in Mr. Schluter. Mr. Petersen responded cordially, but refused.

Mr. Schluter said that the three gainers in the election all had "extremist views."

## MARSHALL: Supreme Court Justice Criticizes Reagan on Civil Rights

(Continued from Page 1)

dent in comments off the bench. In his interviews with Mr. Rowan, Justice Marshall also gave unflattering assessments of Presidents Franklin D. Roosevelt, Dwight D. Eisenhower and John F. Kennedy, while praising Presidents Harry S Truman and Lyndon B. Johnson.

The interviews were recorded in recent months for a program on the Constitution called "Searching for Justice: Three American Stories."

In a telephone interview Tuesday evening, Justice Marshall said that as far as he recalled, his interview with Mr. Rowan was the only formal news interview he had given since President Johnson named him to the court in 1967.

In the telephone interview, the justice cracked at times as a reporter read back to him parts of the transcript, apparently amused by the interest his comments had aroused. But he said, "I'm not going to elaborate on anything."

He also declined to comment on his interview with Mr. Rowan, Justice Marshall spoke bitterly of the treatment of blacks throughout American history, including the present. In a speech in May he denounced the "perpetuation of slavery" and other actions by the framers of the Constitution.

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# Technology Quarterly

Issue No. 2

**DEPARTMENTS****At Home**

## Nations Divided on Ozone Accord

By Thomas Netter

**G**ENEVA — In a last-minute hitch that could derail an historic agreement to save the Earth's vital ozone layer, the United States — and several other industrialized countries — have added potentially divisive proposals to the agenda of an international ozone conference in Montreal, environmentalists said Wednesday.

A new U.S. proposal, said to come from the White House and backed by anti-regulatory elements in the U.S. departments of Commerce and the Interior, would require 90 percent of the world's manufacturers of ozone-destroying chlorofluorocarbons or CFCs, to ratify an agreement before it comes into force, according to David D. Doniger, an attorney at the Natural Resources Defense Council in Washington.

This measure, which Mr. Doniger said has the support of the Soviet Union, would allow Moscow and almost any other country to effectively veto an agreement because the Soviet Union produces 10 percent of world CFC production.

But the new U.S. proposal, raised during preliminary meetings in Montreal this week, is only one of several proposals that could make next week's meeting difficult, Mr. Doniger said. The European Community has proposed eliminating an important category of CFCs from the accord and imposing all 12 member state's production together, so a production

### Environmentalists Fear Last-Minute U.S. Proposal Could Derail Agreement

decrease by one could allow an increase by another, Mr. Doniger said.

At issue is whether the ozone layer can be protected by an international treaty or whether alternative means, such as individual measures involving sunglasses and hats as proposed by some anti-regulatory U.S. officials, should be used.

Ozone is a special form of oxygen that reaches high concentrations in the stratosphere 10 to 30 miles (16 to 48 kilometers) above the Earth. This protective layer permits life on Earth by filtering the sun's harmful ultraviolet rays. If unimpeded, these rays can cause skin cancer, eye problems and reduced crop yields. In the early 1970s, scientists found that certain chlorine-based chemicals were gobbling up the ozone layer at an alarming rate.

These chlorofluorocarbons stay intact until they drift into the stratosphere where they disintegrate, their fragments destroying ozone. The gases are also believed to contribute to the warming of the atmosphere, the so-called greenhouse effect that results

when gases prevent radiant heat from the sun from escaping the Earth's atmosphere.

CFCs provide the spray in many aerosol spray cans, the cooling agents for refrigerators and air conditioners, the cleaning agents for computers, and the foam in foam rubber.

In 1978, the United States and Canada banned the use of CFCs in aerosol spray cans, causing a temporary decline in emissions. Most European countries, however, acted only to prohibit the construction of new plants producing this chemical. The chemical is still widely used for other applications. Per year, industry produces about 600,000 metric tons of CFCs.

The discovery of a growing "hole" in the ozone layer over Antarctica and parts of Switzerland that scientist suspect is caused by CFC emissions, has given new urgency to the issue.

In the most thorough study to date, a team of 150 experts organized by the National Aeronautics and Space Administration is conducting flights in the area this month to determine whether the "hole" is being caused by industrial pollution. The hole over the Antarctic appears each year in mid-September at the end of the southern winter. The amount of ozone decreases to less than half its normal density before returning to normal levels in October.

Other scientists are studying the Arctic skies, where a transitory thinning of the ozone layer was detected in February and March last year. The meeting in Montreal, which is organized by the United Nations Environmental Program, is seeking to put the finishing touches on a tentative agreement

Continued on page 13



Over South Pole, a hole in stratospheric ozone has expanded to cover an area as large as the United States. Ozone protects the Earth from harmful ultraviolet rays.

**Business**

9

Safer flying is one of the aims of a technologically advanced device for airplane cockpits called head-up display. The device in test has enabled pilots to land manually in conditions that would have closed an airport.

**Computers**

10

natural figure of the Brazilian Democratic Movement. Mr. Freire, a moderate who Sarney's fourth minister in his reform in less than three years, has been removed from all responsible posts. His predecessors all resigned under fire from landowners.

He was appointed three months ago to negotiate with the landowners' association, which have armed themselves for peasant land invasion.

The Roman Catholic Church, which actively supports demands for land, has reported killing of more than 100 land disputes since 1983, two priests and a nun.

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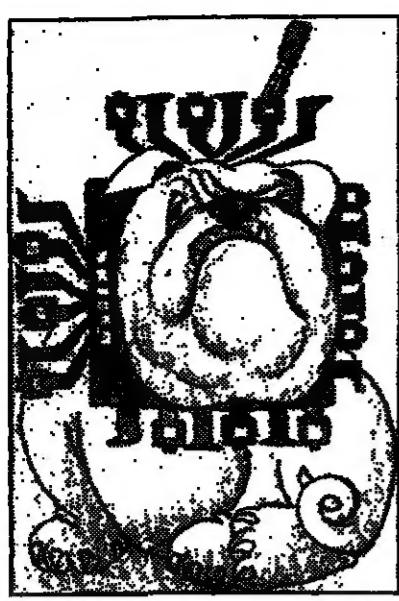
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## Technology At Leisure



Sophie Pierre

## Sensory Assault

**W**HAT'S next for the modern flea-bitten pet? An electronic collar that will break the eardrums of any pest coming within a few feet.

Elexis Corp. of Miami has developed just such a device — an electronic collar for dogs and cats that emits a high-frequency sound that disrupts the sensory system of fleas and ticks.

"To a flea, it sounds like a jackhammer and that makes them run for cover," said Dr. Robert W. Stone, chief of staff at Knowles Animal Hospital in Miami.

Dr. Stone said that in hospital tests the electronic collar proved to be 60 to 90 percent effective in reducing the number of fleas on pets. (NYT)

## Contact Lenses To Throw Away

**V**ISTAKON Inc., a Florida-based subsidiary of Johnson & Johnson, has begun market testing of disposable contact lenses.

The lenses, which are 52 percent water and made of standard contact-lens plastic, require no cleaning and can be worn for about a week before being discarded.

The company estimates that using the disposable lenses would cost an average \$520 a year. The lenses are being sold in Florida in a six-pack and are available for nearsighted correction only.

The U.S. Food and Drug Administration approved the lenses as disposable products in July. They had previously been approved for extended wear. (AP)

# Frankfurt Auto Show to Offer Some Souped-Up Surprises

By Michael Rutherford

**L**ONDON — Major European motor shows are unpredictable events reprieved for their last-minute unveiling ceremonies and surprise announcements.

Take, for example, the Geneva show last March: Aston Martin revealed its new, razor-sharp Lagonda to a stunned press and public; a Bentley Turbo R, built by British coachbuilder Hooper was unveiled and immediately hailed as the "most expensive car ever to be produced for private sale." And Chrysler caught everyone with their guard down by announcing the brave (some might say foolish) decision to re-enter the fiercely competitive European market, where the Chrysler image is, at best, tarnished.

If the comparatively tame and unexciting Geneva show was capable of springing those kinds of surprises and more, it is anyone's guess what might happen at the 1987 Frankfurt show, which opens on Sept. 11. Frankfurt, probably the event in the European motor show calendar, is likely to be full of surprises.

Not many people can safely predict exactly what will go on show. In fact, one of the only things that is 100 percent certain to happen at Frankfurt is the world debut of the BMW Z1 roadster. The company is reportedly fed up with scoop photographs, assumptions, claims and doubts surrounding the car and has, therefore, decided to "put an end to supposition and rumor" by displaying the car on home soil.

The Z1, officially described as a "limited edition, mid-engined sports car," will go into production and on sale next summer. It is the brainchild of a small, young BMW offshoot, BMW Technik GmbH, which was set up by BMW AG as an autonomous operation with the objective of developing forward-looking products and processes.

The bold claim from Bavaria is that the Z1 is "light years ahead of the average souped-up mass-production car." It is based on a monocoque-style load-bearing skeletal steel chassis to which thermoplastic panels are hung. The plastic outer skin and bumpers/fenders help to keep the weight of the car down, and resistance to minor damage is assured, BMW says.

Although the two-seater Z1 can, according to the manufacturer, be driven in open-top form with scarcely any turbulence to disturb the occupants, there is an easy-to-use, leak-free soft top.

Beneath the skin, the Z1 boasts a variety of features lifted from current, highly successful BMW saloons. Initially, it will be powered by the new BMW 325i's six-cylinder engine. The low-pollution version with catalytic converter has "of course" been chosen, says BMW, which claims that the power pack accelerates the car from rest to 62 miles per hour in seven seconds.

Although BMW calls its new offering a mid-

engined car, the straight six engine sits just behind the front axle, which gives a near 50/50 weight distribution. Power reaches the rear wheels by way of a five-speed manual gearbox and a prop shaft running in a rigid aluminum tube to the rear differential, which is also made from aluminum.

The suspension uses BMW 3-series front spring damper struts and, at the rear, a Z arm layout of entirely new design. Handling is said to have a hint of go-kart immediacy about it.

With its wide track, low center of gravity and 49/51 rear axle load distribution, the Z1 has "more than adequate top speed," and everything needed for safe, predictable road behavior and abundant driving pleasure, says BMW.

The price of the Z1 is likely to be about £25,000 (\$40,000) when it goes on sale next summer. At that price, the car will be a certain sellout, particularly as only six a day will be produced.

Launched to the world's press a couple of months ago, the Ferrari F40 (working title, Ferrari Le Mans) seems certain to take the stage at Frankfurt and might just steal the show from the BMW Z1.

The public will see the F40 for the first time at Frankfurt, and what they will see is the fastest road-going car available from a manufacturer of more affordable high-tech wizardry.

The company's latest showpiece, designed and built jointly by the U.S. Light Truck division in Dearborn, Michigan, and the Ghia design studio in Turin, is the HFX Ghia Aerostar — a so-called "family driving machine" for the next century.

Ford is serious about the HFX project, so

for Ferrari, 40 because it celebrates 40 years of "super-car" production) has a stark interior, tubular steel chassis with carbon fiber reinforcement, and also features Kevlar, a stronger-than-steel fiberglass material more commonly used on Formula 1 racing cars.

Rubber bag fuel tanks are also part of the F40 package, along with an automatic lowering suspension system.

Beneath the car's lowered rear window, the longitudinally mounted V8 is clearly visible. It has twin turbochargers that help to produce a massive 478 bhp at 7000 rpm.

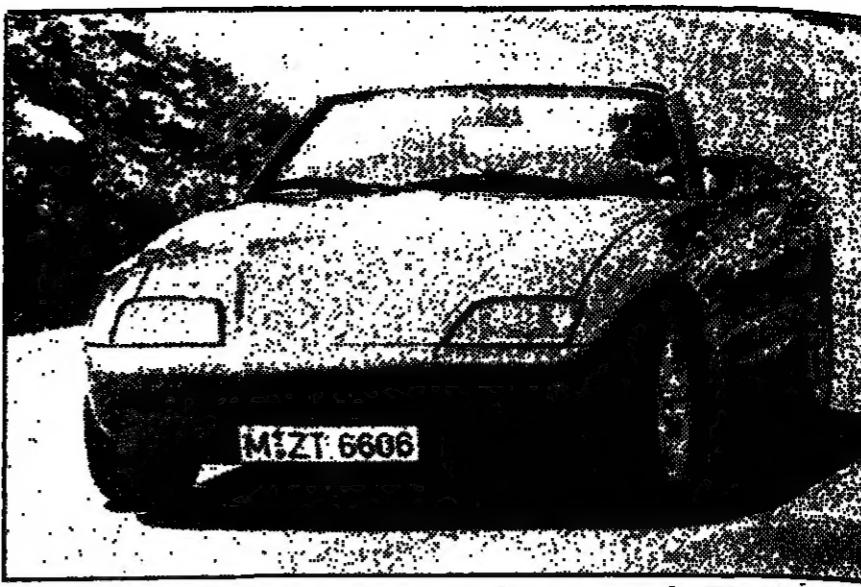
Only 450 F40s will be built, with deliveries being made starting in the spring. The V8 engine has the ability to meet U.S. emission requirements.

The basic price of the car in Italy is 270 million lire (\$201,000), plus car tax and value added tax. For that money, buyers will be invited to select a driving seat that matches their particular body shapes. And they will also go through a two-day "familiarization session" with the car.

As if to prove that state-of-the-art technology is not the sole property of the dream-car manufacturers like BMW and Ferrari, Ford will be tempting Frankfurt visitors with its own brand of more affordable high-tech wizardry.

The company's latest showpiece, designed and built jointly by the U.S. Light Truck division in Dearborn, Michigan, and the Ghia design studio in Turin, is the HFX Ghia Aerostar — a so-called "family driving machine" for the next century.

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BMW's "limited edition" monocoque-style sports car, the Z1.

much so that \$7.2 million and 27 months have already been invested in it.

The HFX is a six-seater, van-like vehicle powered by a three-liter V6 engine driving through a four-speed automatic transmission to the rear wheels. The suspension has a conventional layout, but uses air-springing from the Lincoln Continental and liquid-filled bushes for insulation of vibration.

The HFX's all-disc braking setup incorporates Bendix anti-lock and anti-spin devices, while the rack and pinion steering has speed variable assistance provided by an electric motor.

The Ghia-built steel body (which retains the basic shape of the standard Aerostar) has flush glazing and sensor-controlled radiator louvers.

As might be expected, interior gadgetry is

extensive. There is a dot matrix instrument pack with a choice of three gauge styles and a touch-sensitive screen for controlling air conditioning and trip computer functions. At the touch of a switch, rear windows can be "fogged" for privacy. A laminate using liquid crystal technology is responsible for the fogging process, which, sensibly, cannot be used on the windshield or front-door glass.

No less than 26 computers on board the Aerostar HFX are capable of acquiring/measuring seat settings, seat belt movements and even pedal settings.

Among other manufacturers, Alfa Romeo will finally put on display the much talked about 164; Audi Volkswagen is bound to pull the wraps off something (the new Scirocco or Audi 90 Coupe perhaps?), and Jaguar, keen to establish a stronger foothold in West Germany, may also surprise everyone by showing something for the first time. The fully convertible XJS has already been spotted undergoing "secret" testing in Britain.

Mercedes and Porsche are also expected to reveal new and exciting models on home ground. The new Mercedes SL sports car, for example, should make its debut at the show although nobody within the industry is putting money on it. A safe bet is that Opel will show the nippy Corsa GS, which is about to challenge current offerings in the competitive hatchback sector.

Rivalry will be intense among Japanese manufacturers at Frankfurt. Honda and Mazda are racing each other to be the first to introduce four-wheel steering on cars in European showrooms. The latter has also just released a convertible RX7 in Japan, which means a European debut for the car is due. Toyota, which is rumored to be looking seriously at establishing a European production plant similar to the Nissan factory in the northeast of England, may be introducing several important new variants at Frankfurt. The new Corolla range is the most significant.

MICHAEL RUTHERFORD is news editor of Motor, the London weekly magazine.

## Final Score at Buick: Buttons 1, High Tech 0

By John Holusha

**H**Igh TECH is not the answer to every problem, officials of the Buick division of General Motors have learned. When a new and distinctly smaller Riviera model was introduced in late 1985, Buick decided to compensate for the lost bulk with gee-whiz electronics.

In place of familiar controls for the radio, heater, fan and air conditioner, the car's instrument panel was dominated by a touch-sensitive cathode-ray tube. Drivers would touch one section of the screen to call up command displays, then tap other spots to change the station, lower the temperature or check gauges.

But drivers found the screens confusing and difficult to operate. And they had to take their eyes off the road to tap just the right spots on the screen in just the right sequence. "The Riviera's setup does nothing that a conventional array of knobs, buttons

and analog instruments could not do in a fraction of the time one spends fiddling with this microcircuited mess," Car and Driver magazine observed in a review.

All the interior functions were controlled by the screen, so replacing it would have been expensive. And providing an electronics officer, as the air force often does, didn't seem very practical.

"There may be no good way to do it, with all there is on the car," one Buick engineer commented.

V / 1987 The New York Times

buttons that could be operated by feel. Within the screen, it made the touch-sensitive areas larger — easier to hit. But it also added screens to control a tape player, cellular telephone and an appointment calendar.

So Buick replaced the areas of the screen that control different functions with raised

buttons that could be operated by feel. Within the screen, it made the touch-sensitive areas larger — easier to hit. But it also added screens to control a tape player, cellular telephone and an appointment calendar.

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## NOTEBOOK

### New TV Tube

**THE IDEA OF A PERFECTLY** flat-surfaced color picture tube was tested, and reluctantly rejected as being far too complex, in the 1950s when color television was young. Now, using an advanced design that was originally developed for use in military avionics, Zenith Electronics Corp. has returned to "flat technology" with a new color monitor for computers.

The flat technology monitor, which went on sale in the United States last month, appears to offer significant advantages over conventional cathode ray tube (CRT) monitors in brightness, contrast, color fidelity and reduced glare.

The flat technology will also be incorporated into some of Zenith's color television sets next year, a spokesman for the Glenview, Illinois, company said. (NYT)



Zenith Workers checking a flat technology monitor.

### Passing Taste Test

JUDGES AT A LOS ANGELES County Fair recently awarded the gold medal to a white wine entered by Ariel Vineyards of San Jose. What they did not know until later was that the wine, Ariel Blanc, a blend of chenin blanc and riesling, was a de-alcoholized wine.

Mercedes and Peugeot are also revealing new and existing models on the ground. The new Mercedes SL, for example, should make its debut, although nobody can yet identify it among the many cars. A side benefit of the nippier V-12s, however, is a longer distance between the front and back seats.

BMW will be another major manufacturer at the Frankfurt Motor Show, racing each other to be first to introduce their latest racing or sports showpiece. The latter has been the most controversial, K7 in Japanese, a 1.5-liter engine for the Toyota, which is rumored to be legibly available in 1989. The European plant situated in the Swiss town of Fribourg is to be the only foreign manufacturing plant outside of Germany.

(NYT)

### Fiber Optics

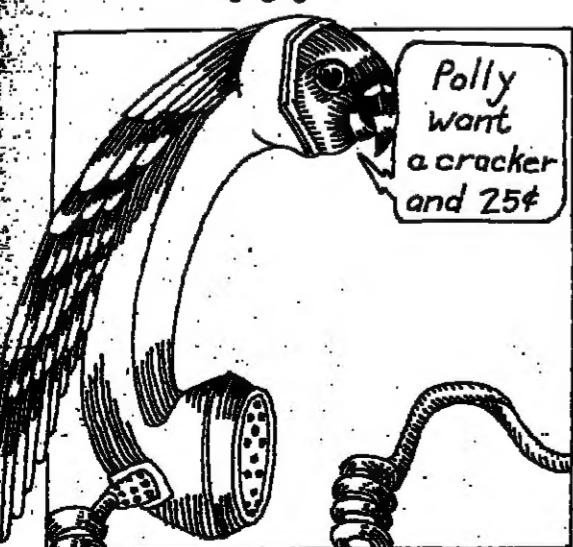
IN GENEVA, A NEW fiber optic television and radio network now being installed throughout the city is to open up a large variety of broadcast programs and computer links over the next four years.

Using fiber optic and coaxial cables, a firm called 022-TELEGENEVE SA, and formed by private investors and the city, is connecting Geneva with a net of cables that will provide viewers with up to 30 local and foreign radio programs including Armed Forces Network and the Voice of America. It will eventually also provide up to 40 television channels, including Cable News Network from the United States and something called Gorizion from the Soviet Union.

"Telenet" won't cost much, officials say. Viewers accustomed to one channel of French-language Swiss television and sometimes blurry transmissions of the three main channels of French television may find it a real bargain.

The fiber optic network is also expected to link up computers in Geneva, which has the highest density of high-tech computers in Europe because of its well-developed service, banking and business interests.

Thomas Netter



### Talking Phones

INDEPENDENT PAY PHONE operators in the United States are turning to new technology to compete with the established Bell operating companies. Already available on a limited basis are pay phones ready to give callers verbal instructions, present advertising messages and operate with computerlike video displays. Others accept credit cards, operate in taxis and limousines and let users choose among competing long-distance services. Pay phones are also being deployed on trains, jet aircraft and ships.

For people too busy to wait, the best yet is Message Phone Inc., which will continue to dial a busy telephone number long after the caller has left the pay phone. The phone records a message from the caller and then redials the number for up to two hours until a connection is established and the recorded message is played. (NYT)

## Technology Business

### Futuristic Cockpit Device Enhances Safety in Air

By Mark Pafiky

**W**ASHINGTON — Changes in aircraft cockpit design are slow in coming. Only within the last four years, for example, has electronic flight instrumentation come into its own on the airliner flight deck.

So, despite decades of space age promise, commercial aircraft are finally achieving a level of instrument sophistication that Apple Computer Corporation has been showing grade school students since the late 1970s.

NASA designers and engineers say the cockpit of the future will take far greater advantage of current computer graphics capability, creating full color, visual images rather than pure digital instrument indications in vogue today.

Using compact, airborne radar and infrared sensors plus data up-linked from the surface, pilots will see actual representations of land masses, hills and valleys. They will see runways in proper relationship and other nearby aircraft with far greater precision than the unaided human eye. And the computerized flight deck will display equally well in visual or instrument conditions.

Although this future may be sometime off, a device called HUD, for head-up display,

display, is here today. HUD offers a new dimension in aircraft instrumentation and provides a major enhancement in air safety.

The device allows pilots to continually look outside their cockpit while seeing instrument indications superimposed on the exterior view. In the current high density air traffic environment, the opportunity to continuously scan outside, dramatically decreases the chances for midair collision.

In light of the recent increase in reported airline near-collisions, HUD takes on particular significance. High density airport traffic operations demand close attention to the outside environment. This is exactly the time when a pilot must maintain continual reference to instruments inside the cockpit. HUD offers a solution by presenting instrument indications against a clear external view.

In addition, the device offers facility for making low visibility approaches in the worst weather conditions, day or night. HUD has been demonstrated totally safe in allowing pilots to manually land in conditions that previously would have closed an airport or required costly auto-land capability.

Currently two U.S. companies are developing and manufacturing commercial head-up displays.

In 1985, Oregon-based Flight Dynam-



Head-up display, or HUD, helps pilots to avoid collisions.

ics Inc. received full Federal Aviation Administration approval and certification for HUD on the Boeing 727. Last month in conjunction with laser gyro, inertial navigation systems, a standard long-range navigation aid already aboard many domestic and trans-oceanic aircraft, the system was certified to assess an aircraft's encounter with windshear

and provide guidance for flying through it.

Jet Electronics and Technology, in Grand Rapids, Michigan, is also manufacturing a similar though slightly less sophisticated system for corporate aircraft.

Essentially, HUD is a small glass window that sits on top of the pilot's glare shield. A series of instrument symbols are projected onto the glass with a virtual image focused at infinity. This allows the pilot to see the outside view plus instrument indications superimposed, without shifting his focus.

On most conventional instrument approaches, the pilot is looking at his instruments. As he descends to the published minimum safe altitude, possibly 100 feet (30.4 meters) above the ground, he must look up and search for visual clues.

A normal human being takes four to five seconds to refocus and mentally assimilate the new image. In this case, the aircraft will be 50 feet lower before the pilot has responded, therefore, reducing safety margins considerably. HUD eliminates this lapse by maintaining the pilot's view and focus at outside infinity for the entire approach.

Windshear enhancement is also part of the order for Alaska Airlines and Federal Express from Flight Dynamics. Not only is the pilot warned that windshear condi-

tions are impending but flight guidance information is provided for a safe recovery when the full windshear is detected.

But despite its full availability, HUD has been slow to take off. Currently, Federal Express is installing six systems to allow its overnight package service to fly more regularly into often fog-bound West Coast airports. Alaska Airlines, with similar requirements, has recently purchased eight systems with 12 more on order.

The "bottom line" in airline operation is generally the deciding factor where safety enhancements are concerned. The Flight Dynamics system could cost between \$170,000 to \$300,000, depending on the retrofit problems. JET's device for corporate aviation sells for about \$100,000, without any consideration for the replumbing.

It is, therefore, unfortunate to learn that safety has a price tag, particularly when the promise of tomorrow is already on the suppliers' shelves. As the two airlines prove the value of HUD, hopefully other operators will follow.

**MARK PATIKY**, who writes on aviation, is the author of "Investors' Guide to the Strategic Defense Initiative," to be published next month by KC1 Communications in Arlington, Virginia.

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## TechnologyComputers

# PCs Are Still Waiting At Executives' Door

By Sherry Buchanan

**L**ONDON — The personal computer has yet to make it into every executive suite. The delay stems from the feeling among some status-conscious managers that typing isn't macho enough. Others are plain scared of new technology and will not bother learning how to use a personal computer, especially since their secretary can do it for them.

Although there are enthusiasts among executive personal computer users, others are finding they might have been better off getting one for their secretary rather than for themselves. The 1987 June survey by Intelligence Electronics Europe, a Paris-based market research firm, shows that, although it is on the increase, only a minority of white-collar workers in Europe use a personal computer at work. The same is true of the United States, where an estimated 18 percent of the white-collar workforce used computers in 1986. Intelligence Electronics' figures for Europe include secretaries, clerks and managers.

An average in 10 European countries, 8.3 percent of white-collar workers used personal computers in 1986; 9.8 percent in Switzerland, 9.6 percent in Britain, 8.6 percent in France and 7.8 percent in West Germany.

Those executives who do use computers have found them to be a mixed blessing. According to the 1987 survey, "Personal Computing: Executive Productivity Survey," conducted by Business Computing & Communications, a London publication, 75 percent of managers surveyed said using a personal computer improved their productivity and 50 percent said they believed the personal computer helped them make better decisions. But more than 50 percent said that having a personal computer meant they had to do work their secretaries used to do and 36 percent were not sure it helped in decision-making.

"Most managers said that the use of the personal computer improved their productivity," said Ian Meiklejohn, associate editor of Business Computing & Communications. "But it wasn't all positive. For many, it meant taking on additional activities that were mainly secretarial or clerical. Some didn't mind, but others didn't welcome the change."

As one British management consultant put it: "I have had no secretarial support for over two years. I may yet weave my own papyrus and grind my own ink."

Part of the reason for few executives using personal computers is that it does not help them do their job. Previous research, by Booz Allen, has shown that executives spend most of their time in meetings and on the phone, not glued to computers. In the British survey, 64 percent of managers surveyed said they only used their machine five to eight hours a week. The only people that made greater use of their computers were data-processing and information-systems staff.

"Regardless of how industry is presenting the product, executives are not going for it," said Gene Buffham, market researcher at International Resource Development Inc., a market research firm in Norwalk, Connecticut. The computer industry, to entice executives, have over the years introduced products to replace the keyboard, including the "mouse" pointer, the touch-sensitive screen and voice recognition, which computer analysts believe will take another 20 years to develop. Today, computers only understand a limited amount of vocabulary and will only respond to a trained voice.

"Executives spend the majority of their time talking to people, in meetings or on the telephone. They are not the ones doing the data inputting, that is reserved for lower level people," added Mrs. Buffham of International Resource Development.

Some British experts believe that many general managers are simply afraid of new technology. These managers may not like to operate personal computers themselves because they do not want to show colleagues that they do not understand them.

"These managers exhibit all the weaknesses and problems people do when they become fearful of their position," said Bert Darnell, the retired chief engineer of British Steel and an ardent advocate of the need to allay people's fears about new technology. "They become defensive and antipathetic to new ideas."

"UT WHAT about the following generations of top executives, some of whom will have started playing with computers in the romper room? As long as typing is associated with lower status, the personal computer will only make it from the playpen to the executive suite if it solves specific problems faced by top executives."

"Tomorrow's top exec will be more familiar with computers; whether that will carry over into the executive suite remains to be seen," Mrs. Buffham said.

In the Business Computing & Communications study, executives found personal computers to be essential for word processing (47 percent), accessing internal corporate databases (45 percent) and financial budgeting and planning (43 percent). For other management jobs, they did not find personal computers useful.

"The higher executives go, the less they are interested in using the personal computer themselves," said Michael Maccohy, a psychoanalyst and anthropologist, who is director of public policy and human development at the Kennedy School of Government at Harvard University. "The only reason people use technology is when it is more convenient."

**S**HERRY BUCHANAN writes the International Manager column for the International Herald Tribune.



employees' workday begins with the ride to corporate headquarters.

By Errol G. Rampersad

**A**STERAS — The Asia Pendolin train pulls out of Stockholm's central railroad station on a workday. This has added a new dimension to commuting by bringing the office to

work. On Platform 5 at 7:45 A.M., a staff of Asia Scandia's large fleet of heavy electrical equipment, worth millions of dollars, is first to leave office. Then a workday begins with the ride to corporate headquarters and with jobs in Västervik, a former mining town 130 kilometers (80 miles) away.

The train is a luxuriously appointed carriage, built at a cost of 4 million Swedish kroner (\$1.2 million).

It is designed with ergonomically designed seats and a special conference room at the front, which is decorated with prints of famous paintings.

"But don't you have them on sale from time to time?"

"Not even one."

"The public use of computers barely exists," Mr. Goodman said. "There are certainly not enough machines around for a computer revolution."

Apart from the BK-0010, the Soviets also produce a machine called the Agat, closely based on the Apple II, which is used in schools, and a range of larger computers based on small to medium-sized IBM mainframes of the mid-to-late 1970s.

The easy exchange of information and data made possible by computers in the West does not exist in the Soviet Union.

The only known civilian networking system is the one operated by the Academy of Sciences for the exchange of scientific data between Moscow and the Academic City, Akademgorodok, outside Novosibirsk. Research centers are highly compartmentalized, according to Western experts. If a researcher or bureaucrat needs to consult a colleague in another institute he is not supposed to make direct contact. Instead, the request goes through his own director to the director of the other institute and back via the same route.

**E**VEN COMPUTER programmers, according to the experts, are given only the information needed to do their part of a job. Often, they do not know the final purpose of the program or what they are working. By restricting the flow of information, and confining computers largely to official institutions, the Soviet Union misses out on the free-wheeling intellectual ferment that produces the West's software genius. There is no Soviet equivalent of the microchip millionaire of Silicon Valley. It is perhaps no coincidence that Hungary, the country that by Western standards is the most liberal in the Soviet bloc, also produces its best programmers.

Despite such handicaps, Mr. Goodman said, the system succeeds in producing some fine computer experts. "It is a big country in which the educational system is oriented toward science and technology," he said. "There is a lot of raw talent around. The Soviet Union has some good hackers, but they are restricted by the hardware they have to use. They have just not been able to work at their full potential."

Mr. Goodman said the Soviet Union is far ahead of China in its application of computers, but is acutely aware of its growing technology gap with the West. It is a dilemma to which there is as yet no answer. In seeking to reap the benefits of computers in modernizing their economy while minimizing the risk to the system of political control, the Soviets are in the position of wanting the golden eggs without the goose. "They cannot afford to have a computer revolution," Mr. Perle said. "On the other hand, they cannot afford not to."

**BARRY JAMES** is a staff writer for the International Herald Tribune.

## Soviets Set to Access the West

By Barry James

**P**ARIS — Bowing to what seems like the inevitable, Western nations are in the process of relaxing their ban on personal computer exports to the Soviet Union.

With the machines freely on sale at thousands of stores in the West, and available in bulk on many alternative markets, the embargo has increasingly been seen by manufacturers as an anachronism that hurts them more than it does Moscow.

Recently, for example, the Soviet Union was reported to have bought a large order of IBM-compatible PCs from Peru to augment its own feeble supply of home-built computers.

"If the Soviets need computers, they can buy all they need without any trouble," said Seymour Goodman of the University of Arizona, a leading Western expert on the use of microprocessors in Communist societies. "Some loosening up [of export restrictions] was necessary," he said in a telephone interview. "Decontrolling the export of PCs merely reflects how successful the West has been in putting these machines into use as a common commodity. The technology is so widespread that it has become impossible to control."

The opposing view is that anything that makes it easier for the Soviets to acquire computer technology is a gift to their military effort. "I think we should draw the line at a place where it does minimal military damage," said Richard N. Perle, who resigned last March as a U.S. assistant secretary of defense for international security policy, a position in which he had strongly opposed the transfer of computer and other advanced technology to the Soviet Union. Mr. Perle has not altered that view.

He said in a telephone interview that he feared the relaxation of computer exports would lead eventually to the setting up of joint venture production facilities in the Soviet Union, an eventuality in which Moscow already has expressed interest. "It's more than a question of letting the Soviets have a few 16-bit PCs," he said. "There's a big difference between buying a few computers here and there and being able to plan to meet major requirements." By allowing the Soviets access to a technology in which they have a commanding lead, he said, Western countries would be fulfilling Lenin's dictum that capitalists will produce the rope needed to hang themselves.

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The widespread private use of personal computers, however, does not appear to be on the Soviets' agenda. Even if they were allowed to do so, people do not have foreign currency to

**D**econtrolling the export of PCs merely reflects how successful the West has been in putting these machines into use as a common commodity.'

money to buy computers from the West in large numbers, or any clear idea of what they would do with them if they did," Mr. Goodman said. Mr. Miller disagreed. "I think the Russian economy is changing, and I think their whole outlook is changing," he said. "They'll have to accept computers as part of their everyday life."

The widespread private use of personal computers, however, does not appear to be on the Soviets' agenda. Even if they were allowed to do so, people do not have foreign currency to

available at Moscow's only electronics store, on Leninsky Prospekt.

A reporter for Komsomolskaya Pravda told in his newspaper that when he visited the store and filled out an application form for one of the computers, "I've read there are several different versions," he told an assistant.

"You should read less," the assistant replied. "Why?"

"Because we don't have any computers, and we won't have any."

"But don't you have them on sale from time to time?"

"Not even one."

"The public use of computers barely exists," Mr. Goodman said. "There are certainly not enough machines around for a computer revolution."

Apart from the BK-0010, the Soviets also produce a machine called the Agat, closely based on the Apple II, which is used in schools, and a range of larger computers based on small to medium-sized IBM mainframes of the mid-to-late 1970s.

The easy exchange of information and data made possible by computers in the West does not exist in the Soviet Union.

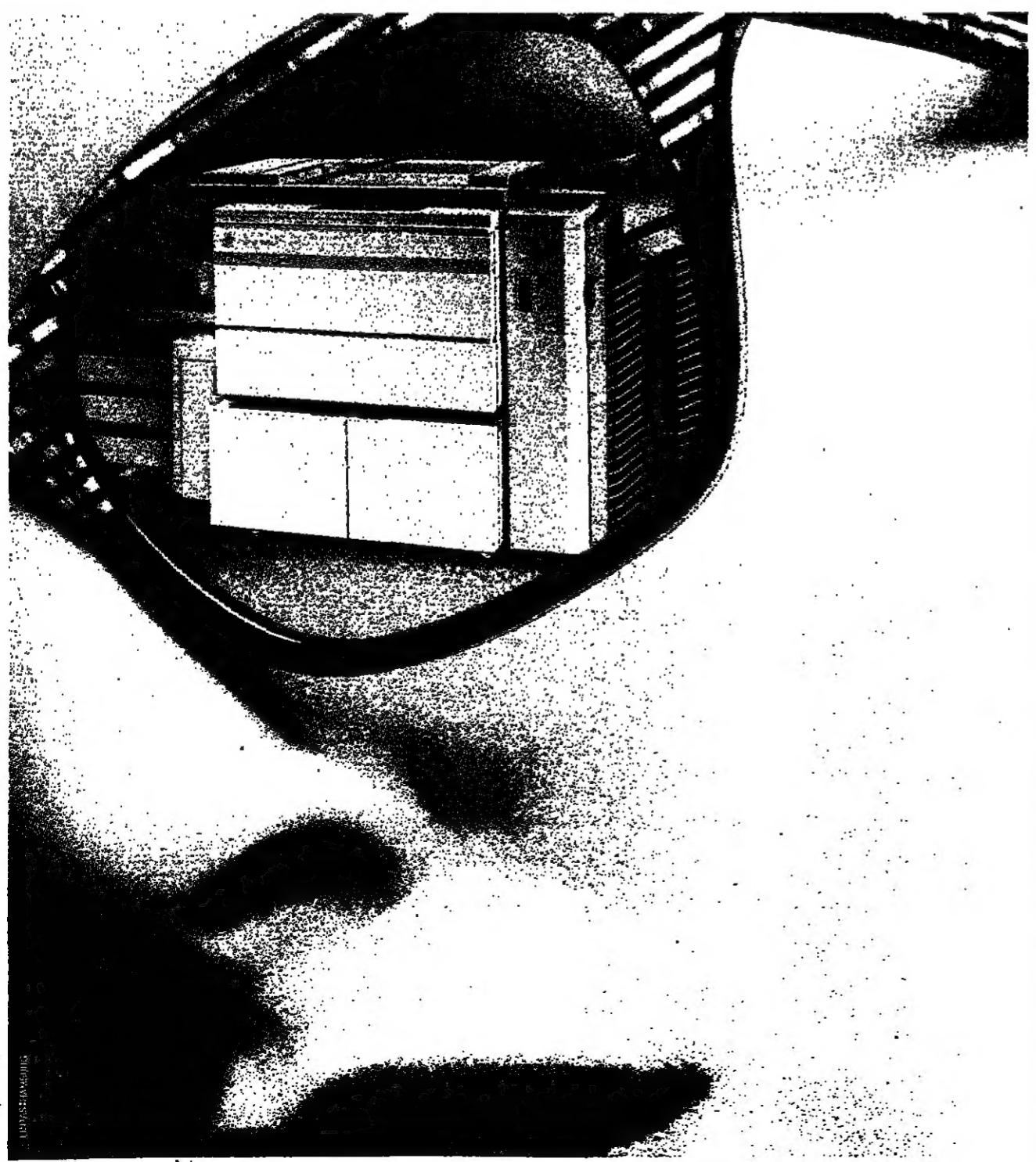
The only known civilian networking system is the one operated by the Academy of Sciences for the exchange of scientific data between Moscow and the Academic City, Akademgorodok, outside Novosibirsk. Research centers are highly compartmentalized, according to Western experts. If a researcher or bureaucrat needs to consult a colleague in another institute he is not supposed to make direct contact. Instead, the request goes through his own director to the director of the other institute and back via the same route.

**E**VEN COMPUTER programmers, according to the experts, are given only the information needed to do their part of a job. Often, they do not know the final purpose of the program or what they are working. By restricting the flow of information, and confining computers largely to official institutions, the Soviet Union misses out on the free-wheeling intellectual ferment that produces the West's software genius. There is no Soviet equivalent of the microchip millionaire of Silicon Valley. It is perhaps no coincidence that Hungary, the country that by Western standards is the most liberal in the Soviet bloc, also produces its best programmers.

Despite such handicaps, Mr. Goodman said, the system succeeds in producing some fine computer experts. "It is a big country in which the educational system is oriented toward science and technology," he said. "There is a lot of raw talent around. The Soviet Union has some good hackers, but they are restricted by the hardware they have to use. They have just not been able to work at their full potential."

Mr. Goodman said the Soviet Union is far ahead of China in its application of computers, but is acutely aware of its growing technology gap with the West. It is a dilemma to which there is as yet no answer. In seeking to reap the benefits of computers in modernizing their economy while minimizing the risk to the system of political control, the Soviets are in the position of wanting the golden eggs without the goose. "They cannot afford to have a computer revolution," Mr. Perle said. "On the other hand, they cannot afford not to."

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personal or more powerful computer. Users will then be able to buy that expert system, probably for a few hundred dollars, and consult the expert's base of knowledge, getting not only the decision of the expert but also the assumptions behind it.

One area that is making great strides is the application of expert systems to real-time plant control in such applications as the monitoring and control of chemical plants, food, pharmaceutical or other process industries. In Britain, a special club of companies has been formed by a software house, Systems Designers, to take the lessons of an earlier collaborative venture a step further.

Whatever the expert system, whether it is run on a powerful minicomputer for real-time chemical plant control or a personal computer for a consultative accounting application, the structure is much the same.

The knowledge and experience of the human expert must be gathered and codified by a knowledge engineer. This knowledge base is then loaded into a computer as a set of rules, the form of which is determined by the specific expert system-building package.

Once this base of information has been laid, a complex computer program, the driver, will help the human user make an assessment.

By the end of the 1980s, according to DM Data, a research company, the largest single use of expert systems will be in the maintenance of complex equipment, with 28 percent of applications: in the financial sector, with 22 percent, and in manufacturing capacity planning, with 17 percent.

Once the cost of developing and running an expert system falls fast enough, it will be like having specialists tailor-made experts on tap for each main area of business. Soon, expert systems that guide lawyers through case law, managers through personnel selection, physicians through diagnosis, accountants through tax law, maintenance engineers through repair visits and financiers trying to optimize investment decisions will be commonplace.

In each case, the rules expressed in the practice of a human expert of long standing will have been taken by a knowledge engineer and encapsulated into an expert system on a different way. They will have a common core

of rules to infer from knowledge, but the need to decide in real time will make special demands on the technology.

To achieve the high rates of growth predicted for the market, expert-system development packages will have to come in two types: those tailored to real-time applications along the lines of Systems Designers' work and, at the other end of the scale, those made as cheap and easy to use as the spreadsheet.

A simple consultative-expert system, for a personal computer, to help with personnel selection, has been launched for £39, by PAL Software in Britain.

But IBM's Personal System/2, the company's second-generation of personal computers, gives the expert-system development package a firmer foundation, according to Peter Lewellyn Jones, chairman of Creative Logic. Creative has just launched the expert system development package, Leonardo. The entry-level Leonardo costs £150 and is powerful enough to build a small-to-medium-scale consultative expert system of 1,000 rules.

Logica, the British software house, has taken the advanced version of Leonardo and built it into a computer operations advice package that helps the users of large computers find out where the bottlenecks in performance are.

At both ends of the market the demand for expert systems will expand through one professional group after another. Some groups will write their own expert systems using packages like Leonardo, just as they tackle spreadsheets and personal computer databases. Others will turn to the software houses like Systems Designers and Logica and have a tailor-made system developed for them.

The most conservative prediction is that the expert-system market will grow fivefold over the next five years in Western Europe.

**RICHARD SHARPE** and **MARGARET COFFEY** are London-based free-lance journalists specializing in computers and technology.

Nixdorf



## Technology Workplace

## Swedes Catch the Office Express

Employees' workday begins with the ride to corporate headquarters.

By Errol G. Rampersad

**V**ASTERAS — The Asa Pendeln that pulls out of Stockholm's central railroad station on weekdays has added a new dimension to commuting by bringing the office to

Clocking in on Platform 6 at 7:40 A.M., the office staff of Asa, Scandinavia's largest maker of heavy electrical equipment, take to their desks in what is the world's first and only railborne office. Their workday begins with the ride to corporate headquarters and their jobs in Västerås, a former Viking trading town 130 kilometers (80 miles) away.

The luxuriously appointed carriage, outfitted at a cost of 4 million Swedish kronor (\$6.7 million), can seat 40 passengers. It is equipped with 26 ergonomically designed work stations, a special conference room and a lounge, which is decorated with postcard plants and contemporary prints.

The coach is owned by Asa and is the first private passenger train to run on the state-owned railroad network, Statens Järnvägar.

The work stations are equipped with telephones connected to a conventional telephone exchange, which in turn is coupled to a mobile telephone system. It provides access to any country in the world, as well as Scandinavia's ubiquitous cellular phones in car and boats. Riders can use electric typewriters as well as personal computers, with which they can gain access to data bases at corporate headquarters in Västerås. Commuters, armed with their diskettes, are in touch with a specially linked computer throughout the ride.

The office-on-wheels was the brainchild of 34-year-old Ann Larsson, a member of Asa's business development and corporate planning division, herself a Stockholm-Västerås commuter. "It was a joke at first," she explained. "Then we thought, why not? It seemed crazy but it made sense."

Mrs. Larsson, who recalled her dread of having to drive from Stockholm to her office in Västerås through the ice and snow during the long and dark winter, said the idea of a mobile office came to her after she switched to commuting. "Many of us who preferred to live in the capital were not



Swedish commuters get all the amenities of the office as the scenery goes by.

happy about the three hours we wasted every day traveling back and forth to Västerås," she recalled. "I felt a lot of valuable time and manpower was being wasted on commuting. I realized this time could better be used to benefit both employer and employees." She presented the concept of a mobile office to Percy Barnevik, president and chief executive officer of Asa, who was receptive to the idea.

The train also ferries visitors traveling from Stockholm and Västerås executives going to the capital for meetings and conferences. It travels back and forth six times a day.

Employees purchase a regular second-class roundtrip ticket, costing 160 kronor a day. Asa pays one-third and the rest is tax deductible. Half the time spent traveling — the trip to work — is deducted from the day.

"As a manufacturer of locomotive assemblies, it is somewhat easier and, certainly, less costly for Asa to accept the idea of an office on rails," a commuting executive said.

"Moreover, cooperation between private enterprise and the state-owned railways is much easier here in Sweden, where labor relations have always been harmonious."

"The railway people have been very enthusiastic and have cooperated in every way," Mrs. Larsson said.

So too has Telavox, the nationalized telephone company. There are 26 phones on board and one can dial anywhere in the world.

The mobile office is run by a staff of four, working in two shifts, operating the switchboard and making sure things run smoothly. On a recent 7:40 run from Stockholm, Eva-

Lena Nilsson and Karolina Frielingdorf went about their duties with customary efficiency, oblivious to the towering pines and sparkling lakes that flashed by. "We have gotten so used to our 'office' that we hardly ever miss the atmosphere of the conventional workplace," they said.

**A**SEA HOPES that its investment in the pendeln would help to attract the capital's university graduates to its offices in Västerås, which, with its 120,000 inhabitants, is a one-company — Asa — town. Stockholmers find it rather boring since there are few amenities for nightlife.

Last year, Asa, founded in 1883, ranked among the world's 10 leading electrical and electronics enterprises, with operations conducted through 346 companies, with a workforce of 71,000 employees. Approximately 70 percent of its sales are outside of Sweden. In a merger with Brown, Boveri & Co. of Baden, Switzerland, announced last month, Asa now becomes the largest in Europe, with a joint work force of 160,000.

Greeting the announcement of the merger on a recent ride, Mrs. Larsson laughed at the suggestion of a railborne office between Baden and Västerås.

ERROL G. RAMPERSAD is on the editorial staff of the International Herald Tribune.

## Fully Automated Factory Goes Beyond the Dream

By Beth Karlin

**W**ASHINGTON — For most international companies, the paperless factory remains a dream. Pencil-pushing and paper-shuffling continue to inhibit productivity gains. But a handful of forward-looking companies are investing heavily to make automation a reality. They are computerizing and integrating everything from sales to manufacturing to shipping. And they are doing it on a worldwide basis. Early results are impressive.

At Tandem Computers, for example, productivity increased 340 percent and work-in-process throughput decreased from 19 weeks to less than two weeks as a result of extensive automation at its Watsonville, California, facility. Tandem's high level of office and manufacturing automation extends far beyond Watsonville to encompass — and unite via a sophisticated network — three domestic assembly plants and another in Neufahrn, West Germany, according to Jack Cundari, Watsonville plant manager.

Successes by Cupertino, California-based Tandem and other innovators are encouraging more companies to expand computer integrated manufacturing. Such firms as ICL of Britain, N.V. Philips of the Netherlands and Siemens of West Germany are following suit. Indeed, European spending for automation is growing at a faster rate than in the United States, according to Dataquest Inc., a San Jose, California, market research firm.

Europe's speedier growth is due at least in part to the fact that it is making up for a slower start. But the declining value of the dollar, and corresponding increase in the price of foreign-made products in the United States, also is contributing to the new enthusiasm for automation in Europe. The only real way to lower prices, without lowering profit margins, is to cut production costs.

"They've had to automate," says David Penning, director of Dataquest's manufacturing automation service. "And while they've been making real changes, we've just been fooling around with currency. Once again, we've shot ourselves in the foot."

Total European spending for automation, including computers, software and manufacturing systems, will more than double to \$7.1 billion this year, from \$3.3 billion in 1983, according to Dataquest. By 1991, Dataquest predicts, European automation investment will climb nearly 50 percent more to \$10.5 billion.

U.S. spending, meanwhile, will increase 78 percent to \$17.8 billion, from \$10 billion between 1982 and 1987. Dataquest forecasts, however, that by the end of the decade, U.S. spending for factory automation will start increasing at a faster rate. By 1991, Mr. Penning estimates, the U.S. market will expand to \$28.3 billion.

The benefits of computer integrated manufacturing are many, says Tandem's Mr. Cundari. Assembly and test operations at the computermaker's Austin facility, for instance, are entirely tracked and controlled without paper. Wands are used to read bar code labels affixed to subassemblies and other work in process. As a result, the computer records — and any worker who wants to know can instantly learn — where the work has been, where it is and where it is headed.

Via computer, Tandem officials can learn everything from the raw material to finished goods inventories at any of the other plants.

## How U.S. Systems Score Abroad

Foreign sales of American-made automated manufacturing equipment have grown from \$9 billion in 1982 to \$17 billion this year. By 1991, the market could exceed \$29 billion.

Destination	1982	1987*	1991*
United States	10	18	28
Western Europe	3	7	10.5
Asia	4	7.5	14
All others	1	2.5	5

Source: Dataquest

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# Scramble

to openness and watershed the last days for companies to stay. But it's been accomplished, at least like Mr. O'Leary's statement.

But not all these years, and the more who have entered the fray, the more whether the front remained in the field, never could be known until all the data that would be available were gathered.

The best goal was to keep Keltair's share that would be gained during the time that it would take to gather information.

It is important which market sector the company has chosen to enter the market for aircraft parts, not only because that would affect the cost of the parts, but also because the market for aircraft parts is not yet fully developed.

A joint venture between Japan's Tora, Soficar, has been set up by Elf Pechiney in France. BASF has a composite joint venture with a rival Japanese firm, Toho Rayon, which has also licensed Enka of the Netherlands. A new U.S.-

## Companies Try to Cash In on New High-Tech Carbon

By Vivian Lewis

**P**ARIS.—Takeover bids, joint ventures, international acquisitions, know-how sales, are proliferating in the carbon business—but that is because carbon is becoming high-tech. British Petroleum has acquired Enka of the United States, which makes carbon-carbon engine nozzles. BASF of West Germany has bought Celanese, a leading U.S. carbon fiber manufacturer. Du Pont has also bought into the business.

A joint venture with Japan's Tora, Soficar, has been set up by Elf Pechiney in France. BASF has a composite joint venture with a rival Japanese firm, Toho Rayon, which has also licensed Enka of the Netherlands. A new U.S.-

cause they require one-tenth the density for comparable performance.

In current Airbus production, composites account for 18 percent of the total weight of the planes—the A320, A330-34 and ATR models. Two years ago, they accounted for only 9 percent. Industry sources estimate that composites will account for 30 to 40 percent of the total for the next civil aircraft generation—fuselage, tanks, wings, ailerons, tail, jet housings, ducts, landing gear housing.

In military aviation, composites are used more widely. For example, in the Dassault Rafale model, composites account for 24 percent of the weight, compared to only 7 percent in the Mirage 2000. Every Rafale in current production uses 2,083 pounds of composites.

In the United States, aerospace accounts for 60 percent of the carbon fiber market, and in Europe, 1,250 in Japan, 750 in Europe. By 1990, the market is expected to reach 6,800 tons; by 1995, up to 11,200.

Growth is expected to be fastest in Europe and in countries not included in the geographical breakdown, like China, Israel, Brazil and South Africa—from a lower base. By 1995, America's will be up 150 percent and Europe's will nearly quadruple.

Carbon fibers were invented in Europe but the inventor, Britain, has lost rank in developing it. The development of carbon fibers was started in the early 1960s by the RAE research center in Farnborough, England, and was brought into commercial use by the Hydral Graf joint venture of the British chemical firm Courtauld and DuPont Hysol, a U.S.-based company in Pittsburg, California.

Hydral Graf is still the leading European producer, with a rated capacity of 350 tons a year at Coventry and a further 300 tons produced at Sacramento, California. In addition it has sold licenses to producers from Shanghai and Finland to South America. It also dominates the production of the resin used to make the high-tech version of carbon fiber, called Pan (for poly-acrylic-nitrile). There also is a lower grade felt-like version, called pitch, which is less pure, cheaper and more widely used.

But in the world carbon fiber league, the top producers are Japanese. Tora, at 1,500 tons, with a further 300 tons produced under license by Amoco in the United States and 300 tons by a joint venture in France; Toho Rayon at 1,300 tons, with a further 350 tons being brought into production by Enka in the Netherlands or America, starting with the Hercules plant in Beaufort, Utah, at 1,000 tons a year, and followed by the Celanese-BASF plant at Rockhill, South Carolina, at 450 tons a year.

In an attempt to catch up in carbon fiber, the French government in 1981 supported the establishment of two joint ventures, one with Hercules by Pechiney, and the other with Tora by Elf.

But then it became clear that the market was not doubling every year and that two factories competing with each other would be catastrophic. Since Elf, an oil company, is government controlled, and Pechiney is nationalized, the government could stick together a complicated three-way joint venture, and Hercules was persuaded to pull out in 1984. Soficar still must buy both the carbon fiber and the know-how to process it from Tora.

By scrupulously following Japanese production methods, Soficar three years later is producing material up to Japanese levels. Last year Boeing qualified output from the Soficar plant for use on its planes, and in June, qualification was given by Aerospatiale and Dassault in France. Soficar is still working on gaining qualifications from MBB of West Germany,

which builds composite parts for the Airbus.

The state got involved in the technology purchases to increase the French role in making composites for the military. But now that access to the material is greatest, the French are working on new uses for carbon-carbon composites.

For example, Carbone Industrie, a joint venture of Alsthom and Messier-Hispano-Bugatti, is working on a braking system for the newer, fast-

er version of the TGV train, which will go at up to 350 kilometers (217 miles) an hour, compared to 250 to 270 kilometers for the current Paris-Lyon route.

Officials of the firm calculate that saving a pound in producing a car is worth \$125 to \$250 over its life.

Alsthom is also working on a

braking system for the newer, fast-



Fiber carbons can be used for airplanes—or bicycles.

In civil aviation, carbon fibers are replacing light metals.

French composites joint venture has been set up with Ferro Corp.

Pure carbon (graphite) filaments used to be used merely to make incandescent light bulbs. Now they are being stretched and spun out into fibers, sized, glued, textured and matted to make felt.

They are woven alone or with plastic or metals to make cloth.

They are coated, layered, soaked with resins, vacuum cooked, dehydrogenated, polymerized, baked at ever higher temperatures—up to 2,000 degrees Centigrade (3,632 degrees Fahrenheit)—lined with other new materials like Kevlar or fiberglass or epoxy, sandwiched around foam, machined, molded and rolled in a host of new, labor-intensive processes to produce new carbon materials.

Tailoring carbon fibers and carbon composites produces costly materials that are incredibly light and that have properties similar or better than those of metals in resisting heat, abrasion, pressure and chemicals.

Pure carbon has a "miracle" feature, since its friction coefficient rises with temperature, making it ideal for brakes.

Production is semi-artisanal, measured in hundreds of tons, whereas most chemicals are produced in millions of tons, and prices are high, ranging from \$1.50 to \$15 per pound for composites used in the sports industry, and \$20 to \$200 per pound for aerospace composites and carbon fiber. This compares with about \$4.50 per pound for special steels.

Given their high price, carbon fiber and carbon-carbon composite materials can replace metals where losing weight is worth paying for: mostly airplanes and missiles, but also sports equipment, such as golf club shafts, arrows, bicycles and tennis racquets. For airplanes, saving one pound in construction is worth \$250 to \$300 during operating life. As a result, the use of carbon fibers in planes has mushroomed. In civil aviation, carbon fibers are increasingly replacing light metals like tungsten, despite their cost, because they require one-tenth the density for comparable performance.

## Ozone Pact in Doubt

Continued from page 7

reached in Geneva in April to reduce CFC production and consumption. The pact would freeze production at 1986 levels beginning in 1990, with a 50 percent decrease over the next five years.

"I think there is a good chance of getting an agreement signed," Daniel J. Dudek, senior economist of the nonprofit Environmental Defense Fund of New York City, had said earlier. Mr. Dudek and other environmental officials acknowledge that there is some opposition, both from industrial producers and users as well as from underdeveloped countries. These countries may be given more time to deal with the effects of drastically reduced CFC production.

The British and German chemical industries question the need for cuts and fear that they will unfairly benefit the U.S. chemical giant E.I. du Pont de Nemours and Co. Du Pont has recently stepped up research on CFC substitutes and says that it can provide ecologically sound alternatives on a commercial basis in five years. The European companies say it will take them 10 to 15 years to catch up.

Until recently, the United States had galvanized efforts to reach an accord.

But in May, the U.S. interior secretary, Donald P. Hodel, proposed an alternate "personal protection" program against ultraviolet radiation using sunglasses, hats and sun-screening lotions.

Mr. Hodel said he believed an accord might counteract President

Ronald Reagan's philosophy of reducing government regulation. These suggestions, however, provoked amusement and even scorn from environmentalists.

"Hodel actually did a great service to the issue by pointing up the absurdity of a 'no action' alternative," Mr. Dudek said. "When they began to check the cost of sunglasses and sun screens for people, they began figuring on \$30 to \$60 a person. And on that basis nationwide, you can get into some real fancy numbers."

Scientific analysis and international diplomacy appear to be ahead of sunglasses and sun screens in the battle against ozone depletion, Mr. Dudek and other environmentalists say. Despite Mr. Hodel's comments, the U.S. State Department and the Environmental Protection Agency remain committed to an accord, with the support of large industrial concerns.

Meanwhile, the European Community, under pressure from West Germany, the Netherlands and Denmark, has recently endorsed a tighter schedule of reductions in CFCs.

At the same time, a move toward accommodating Third World concerns may also ease the path to an accord. Limited exemptions could ease Third World fears that drastic reductions in CFCs could harm their fledgling chemical, consumer, computer and refrigeration sectors, environmental officials say.

Mr. Hodel said he believed an accord might counteract President

THOMAS NETTER is a journalist based in Geneva.

His Unisys team worked with CHANEL to develop an on-line inventory and manufacturing system that enables The House of CHANEL to monitor production standards and to keep track of goods that are shipped to stores and CHANEL Boutiques across the country.

"Efficiency is the key word." Manufacturing specifications for the company's famous perfumes, including CHANEL N°5, are stored in Unisys microcomputers in Piscataway, N.J. The microcomputers also are used to evaluate perfume samples as they come off the assembly line. A mainframe system then monitors the manufacturing and distribution of products.

This manufacturing data is

immediately available to company executives, along with information from micro-computers in CHANEL Boutiques across the country, providing an up-to-the-minute inventory database. It used to take three to four days for this information to reach executive desks.

"By having the data to make better, more-informed decisions, profits have increased while the high level of product excellence and customer service has been maintained," says Trivedi.

CHANEL has long been familiar with the sweet smell of success. "And now with Unisys, CHANEL has found that computers are very much in style."

Unisys and manufacturing. The power of

# "High tech comes to high fashion."

Prakash Trivedi, Branch Sales Manager, Unisys.



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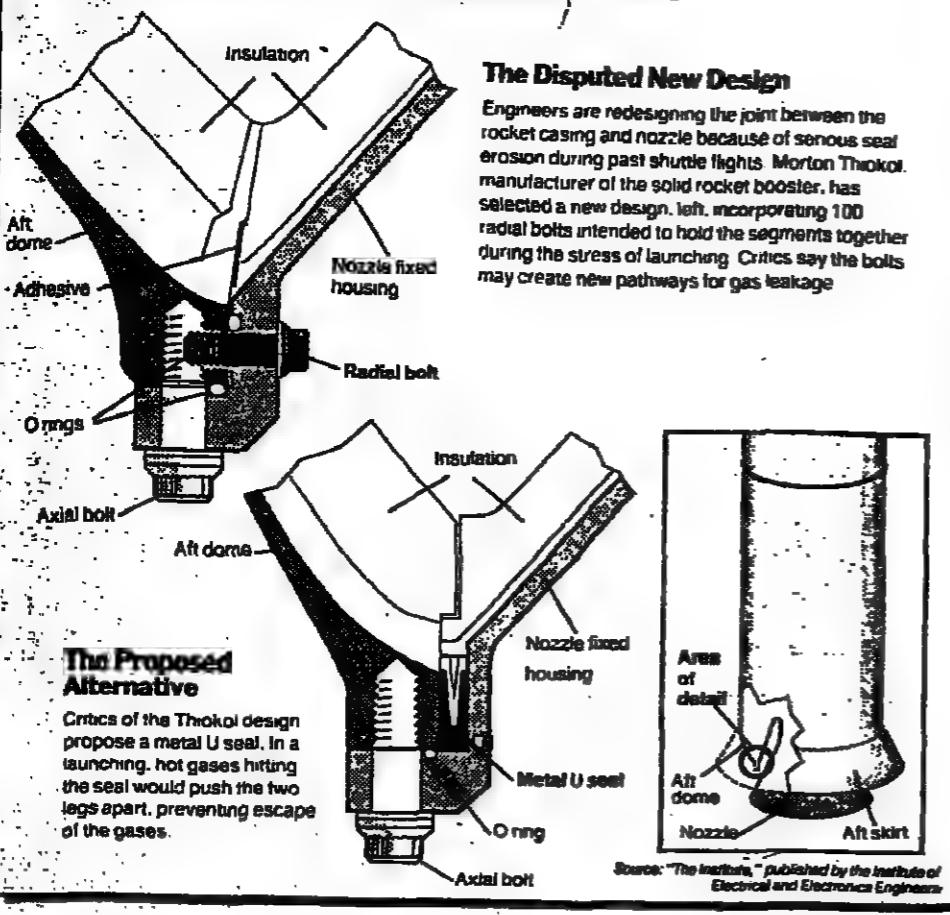
The power of 2



## SCIENCE

## The Surgical Saga of the Siamese Twins

## Troubled Booster: Another Seam Under Scrutiny



## The Proposed Alternative

Critics of the Thiokol design propose a metal U seal. In a launching, hot gases hitting the seal would push the two legs apart, preventing escape of the gases.

## The Disputed New Design

Engineers are redesigning the joint between the rocket casing and nozzle because of serious seal erosion during past shuttle flights. Morton Thiokol, manufacturer of the solid rocket booster, has selected a new design, left, incorporating 100 radial bolts intended to hold the segments together during the stress of launching. Critics say the bolts may create new pathways for gas leakage.

By Jane E. Brody  
New York Times Service

**T**HIS morning surgery Saturday and Sunday that successfully separated 7-month-old Siamese twins joined at the head actually began in West Germany five months ago. Last spring, a team of physicians from Johns Hopkins Hospital in Baltimore visited the infants and devised a unique operative plan that they thought could separate them without causing lasting brain damage.

Almost immediately, the doctors began a procedure to slowly stretch the babies' skin sufficiently to cover an operative wound.

The same months of preparation and lengthy dress rehearsals using dolls attached at the heads with Velcro. One small mistake could mean permanent damage or even death for one or both of the otherwise healthy babies.

Dr. Mark Rogers, the physician who choreographed the final plan, likened it to "a complex military maneuver" in which anesthesiologists, cardiac surgeons, neurosurgeons, plastic surgeons, nurses, technicians and electricians were "trained to provide the proper input" when it was needed.

The separation surgery was scheduled for the Labor Day weekend, when no elective surgery is planned and the 70 professionals needed in the cramped operating room, the 70 others in support, and the 60 units of blood and blood components required could be dedicated to the twins.

"Independent of the success of this operation, our ability to plan something as complex as this taught us that we can accomplish much more than any of us thought we could," Dr. Rogers said after completing the 22-hour procedure.

Late Monday afternoon, 36 hours after their surgical ordeal came to an end, the babies, Patrick and Benjamin Binder, were in critical but stable condition in the pediatric intensive care unit.

The separation surgery was a series of routine but advanced medical maneuvers that put the brain temporarily on hold. The babies were placed on heart-lung machines and cooled to reduce brain function to near-zero. At the critical moment, when Dr. Carson had to divide the shared brain cavity and drainage vein, the cardiac surgeons, Dr. Bruce Reiss and Dr. Duke E. Cameron, drained all the blood from the babies' bodies and stopped their hearts.

Dr. Carson and Dr. Donald Long, the chief of neurosurgery, had one hour to accomplish final separation, reconstruct the divided brain cavities and veins and restart the hearts and blood flow. Longer than that and the oxygen deficit could result in permanent brain damage, Dr. Cameron said.

"As we got to 45 minutes, there was a lot of tension in the operating room. But we made it. One baby

was done in 56 minutes and the other in 63," Dr. Carson said.

Then came an even scarier moment. Once the babies' hearts were restarted, they bled profusely from all the tiny blood vessels in the brain that had been severed during the surgery. First pint was needed, nearly exhausting the supplies; participants in and out of the operating room volunteered more.

At the same time, the babies' surgically traumatized brains began to swell dramatically.

So it was decided to end the surgery as soon as possible, rather than pursue the original plan to fit the babies immediately with custom-designed metallic mesh skull coverings.

According to Dr. Craig Ducreux, the plastic surgeon who had designed the coverings using a three-dimensional model generated by a Cerner computer, a second operation to create a cosmetically acceptable skull will be done at a later date, assuming the babies continue to recover normally. Once in place, the babies' skull bones will grow into and around the mesh, which will never require removal, the plastic surgeon said.

Before the separation surgery could be undertaken, a section of the hospital needed to be rewired. "We tried to anticipate everything," Dr. Rogers explained.

"Like what would happen if there were a power failure during the surgery. With all the machines we were using, we could easily have overtaxed the operating room's electric system."

But throughout the planning, the central concern remained the babies' neurological status. "We decided in advance not to proceed unless we thought we could separate them without compromising the neurological function of either baby," Dr. Rogers said. Until the infants' brains were actually exposed during the operation, the surgeons could not be certain that parts of critical brain tissue, such as the vision center, were separate.

Fortunately, they turned out to share only a main drainage system, called the sagittal superior sinus, and a critically important vein.

Dottie Lappe, the acting head nurse of the pediatric intensive care unit, who cared for the Binder babies before their surgery as well as after, described them as "happy, smiling, playful infants who laughed and cried like other babies." Except for their immobility, she said, they were at the right developmental stage for their age.

"Everything in the surgery went as planned and as well as we could have hoped for," Dr. Carson said. "The rest is up to God."



Dr. Mark Rogers with the dolls used to rehearse surgery.

## Shuttle Safety Debate Persists

By David E. Sanger  
New York Times Service

VEN as engineers dissect the space shuttle booster rocket fired in Utah recently, debate continues over one element of the rocket redesign that some engineers suggest poses as many hazards as it eliminates.

The debate does not center on the joints that failed in the Challenger accident, but on another crucial seam, at the aft end of the rocket, where the nozzle is attached. In shuttle flights before the Jan. 28, 1986, accident the awkwardly shaped "nozzle-to-case" joint was the site of some of the most serious in-flight erosion of safety seals. Revamping the nozzle joint, which cannot be seen from outside the rocket, has been one of the stickiest problems facing Morton Thiokol Inc., the manufacturer.

A new design, incorporating an extra O-ring, 100 bolts to hold the joint together, and other changes, has been adopted by Thiokol with the endorsement of Allan J. McDonald, one of the Thiokol engineers who warned against launching the Challenger. But the new design has been criticized by Roger Boisjoly, a former Thiokol engineer who also argued against the ill-fated Challenger flight.

Both men have a significant stake in their opinions: Mr. McDonald serves as chief of Thiokol's redesign team and Mr. Boisjoly resigned from the company after the disaster, filing suit against it for fraud and defamation.

The engineers' disagreement was a subject of informal discussion last week among rocket specialists who gathered in the Utah desert to watch the first test-firing of the revamped rocket. While most experts concluded that the path chosen by Mr. McDonald's team at Thiokol would probably work, they said Mr. Boisjoly had pointed out real weaknesses. Even the independent National Research Council overseeing the redesign has its doubts about Thiokol's choices. At its prodding, the company has issued a subcontract to Vetcro Gray Inc. of Houston to design and test an alternate nozzle joint that substitutes high-temperature metal O-ring seals for the primary rubber O-ring in the Thiokol design.

"If we were starting from scratch and had plenty of time, the metal seal would probably be the way to go," one member of the panel said last week, insisting on anonymity. "As it is, the metal seal is the first backup plan."

Under the pressure of launching, the two segments sometimes separated a fraction of an inch, and hot gases began to erode the rubber O-rings. Had those rings burned entirely through, few doubt the shuttle would have been destroyed.

To prevent the problem from recurring, engineers have redesigned insulation around the joint using a "seal" that should prevent any hot gas from getting near the O-rings. A third O-ring has been added as a "wiper seal" to prevent contaminants from getting into the joint during assembly. And most importantly, 100 bolts have been added around the joint.

Mr. Boisjoly's criticisms are focused on the new radial bolts in the redesign. The bolts are placed between the primary O-ring in the joint, intended to stop the flow of hot gas, and the secondary O-ring that provides a backup.

"They cripple the redundancy of the secondary seal in 100 places," Mr. Boisjoly said. In other words, each bolt provides a potential leak path for any hot gas that makes it around the primary O-ring.

"It's like tightening the bolts on a car wheel," he said. "You do one side, then go to an opposite bolt and tighten that," he said. But as each of the 100 bolts in the nozzle joint is connected, Mr. Boisjoly said, the joint itself could be deformed, "creating tremendous stresses in the whole part."

"Murphy's Law awaits them," he maintained. "If they're right, then they are heroes and I'm a bum. And that's O.K. If I'm right, more people could die."

Mr. McDonald responds that the

## IN BRIEF

## Possible Key Found to Malaria Deaths

WASHINGTON (AP) — Scientists have discovered that a natural body protein is likely a major cause of the deadliest complication of malaria, a finding that suggests that blocking the chemical's action might save hundreds of thousands of lives each year.

Studies indicate a protein called tumor necrosis factor (TNF) or cachectin is an essential element in highly fatal cerebral malaria, said researchers with the World Health Organization and the University of Geneva in Switzerland. Blocking the protein's action with antibodies or other agents might be a new way to treat the most fatal complication of malaria, according to a report in the journal *Science*. Estimates are that cerebral complications account for more than half of all malaria deaths even though the condition develops in less than 1 percent of cases overall. There are an estimated 100 million estimated new cases of malaria worldwide each year, with one million resulting in death.

That's why we conduct tests," a member of the panel said. "Of course," he added, "the booster was tested extensively before the shuttle accident, too. And look what happened."

Members of the National Research Council say they believe Mr. Boisjoly's fear about the Thiokol design and its bolts may be exaggerated.

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FROM AUDIO EQUIPMENT  
THURSDAY, SEPTEMBER 10, 1987  
INTERNATIONAL MA  
Company 'Lifers' I  
their Maximum Se

NYSE Most Actives						
Vol.	High	Low	Last	Chg.	% Chg.	
AmesDp	32000	132	128	128	-3	-2%
IBM	34075	150	147	157	-1	-1%
AT&T	21417	124	120	120	+1	+1%
PAGE	21222	40	37	37	+1	+1%
GenEl	12322	16	15	15	+1	+1%
Philips	11134	105	104	104	+1	+1%
USAir	12250	26	25	25	+1	+1%
Axon	12250	27	27	27	+1	+1%
PoCt	12250	27	27	27	+1	+1%
Unisys	12250	47	46	46	+1	+1%
Chrys	12123	42	42	42	+1	+1%
FedEx	11712	10	9	9	+1	+1%
Globe	11495	92	90	91	+1	+1%
NwMa	11495	92	90	91	+1	+1%

Market Sales						
Vol.	High	Low	Last	Chg.	% Chg.	
NYSE 3 sum. volume	137,159,000	172,411	172,529	172,449	+1	+1%
NYSE 3 sum. core. cash	223,457,500	213,451	213,578	213,542	+1	+1%
Armen 3 sum. volume	11,110,000	15,240	15,253	15,253	+1	+1%
Armen 3 sum. core. cash	14,000,000	15,412	15,538	15,523	+1	+1%
Prev. OTC 4 sum. volume	140,444,300					

NYSE Index						
High	Low	Close	Previous	Class	% Chg.	
Composite Industrials	176.43	173.16	175.79	175.49	175.49	+1.1%
Trans. Utilities	152.00	149.70	151.50	151.50	151.50	+1.1%
Finance	154.12	151.93	153.02	152.69	152.69	+1.1%

Wednesday's NYSE Closing						
Via The Associated Press						
Advanced Declined Unchanged Total Issues New Highs New Lows	354	292	255	889	265	+1.1%

AMEX Diary					
Class	Prev.	Week	Year	Adv.	Chg.
Composite	427.48	428.82	427.32	348	+1.1%
Trans. Finance	272.14	272.50	272.50	262	+1.1%
Utilities	112.44	112.92	113.57	15	+1.1%
Finance	36.21	36.21	36.21	1	+1.1%
SP 100	313.92	304.49	308.00	309.00	+1.1%

NASDAQ Index					
Class	Prev.	Week	Year	Adv.	Chg.
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Finance	36.21	36.21	36.21	1	+1.1%
SP 100	313.92	304.49	308.00	309.00	+1.1%

AMEX Most Actives						
Vol.	High	Low	Last	Chg.	% Chg.	
Diamond	15283	174	16	174	+1	+1%
TexAir	15212	174	16	174	+1	+1%
AT&T	5721	124	124	124	+1	+1%
Voice	2048	124	124	124	+1	+1%
BoltPh	2242	124	124	124	+1	+1%
TutMax	2013	124	124	124	+1	+1%
Amex	2020	124	124	124	+1	+1%
Custom	2020	124	124	124	+1	+1%
Wendell	2020	124	124	124	+1	+1%
Audix	12121	124	124	124	+1	+1%
Echid	12121	124	124	124	+1	+1%
Wright	12121	124	124	124	+1	+1%

AMEX Stock Index					
Prev.	High	Low	Last	Chg.	% Chg.
26442	26473	26428	26473	+1	+1%

Dow Jones Bond Averages						
Close	Prev.	Today	High	Low	Chg.	
Bonds	85.45	85.61	85.61	85.55	+0.16	+1.8%
Utilities	85.95	86.44	86.44	86.35	+0.49	+1.1%
Industrial	86.35	86.35	86.35	86.35	+0.00	+0.0%

NYSE Diary						
Close	Prev.	Today	High	Low	Chg.	
Advanced	82	83	83	83	+1	+1%
Declined	212	212	212	212	+1	+1%
Unchanged	412	257	257	257	+1	+1%
Total Issues	2021	2022	2022	2022	+1	+1%
New Highs	7	7	7	7	+1	+1%
New Lows	74	74	74	74	+1	+1%

\* Included in the sales figures.

Odd-Lot Trading in N.Y.					
Buy	Sales	% Chg.	Open	High	Low
Sept. 4	240,028	-1.0%	100.00	100.00	99.00
Sept. 5	240,028	-1.0%	100.00	100.00	99.00
Sept. 6	240,028	-1.0%	100.00	100.00	99.00
Sept					





## BUSINESS ROUNDUP

**LVMH Acquires Cognac Hine**

Reuters

**PARIS** — The luxury goods company LVMH Moët Hennessy-Louis Vuitton, with a product line ranging from champagne to suitcases, said Wednesday it had bought a cognac maker, Cognac Hine SA, from Guinness PLC.

An LVMH spokeswoman said the price was about 300 million French francs (\$50 million). In

June, LVMH and Guinness, the Anglo-Irish brewing company, decided to merge their international distribution networks.

New mergers and joint ventures in France's luxury goods industry have accelerated recently as traditional family-owned companies are pressured by increased foreign competition.

LVMH itself is the product of a

June merger that included the champagne houses Moët & Chandon, Dom Pérignon and Veuve Clicquot as well as Hennessy brandy, Christian Dior perfumes and Louis Vuitton luggage. It expects annual revenue of about 13 billion francs.

Hennessy, the world's leading cognac maker, sold 25 million bottles last year. Hine, founded in 1763, sold 2.4 million bottles last year, and has a strong market share in Southeast Asia, the LVMH spokeswoman said.

Recent changes in France's luxury goods industries include Yves Saint-Laurent's sale in July of Charles de Gaulle perfumes to Revlon Inc. of the United States. Vuitton, meanwhile, said last month it is seeking a majority stake in the Givenchy fashion house. It already owns the Givenchy perfume line.

Guinness said that it would retain an association with Hine as existing distribution contracts are to continue and, in addition, it has been appointed the exclusive distributor for Hine products in the duty-free market worldwide, except where distribution is already undertaken by a third party.

The Moët-Hennessy merger with LVMH and the LVMH-Givenchy merger with Vuitton this year was valued at about 25 billion francs. The merged company became the sixth largest concern on the Paris Bourse. Executives have estimated LVMH's profit this year at 1.3 billion francs.

P&O said its service and investment property companies produced steady growth, with the property sector being particularly buoyant in Britain. However, currency movements and the troubled Australian economy hurt the shipping and Australian results.

**P&O Pretax Profit Soars 45% With Help From Acquisitions**

Reuters

**LONDON** — The Peninsular & Oriental Steam Navigation Co. said Wednesday that pretax profit in the first half jumped 45 percent to \$101.1 million (\$166 million) from \$69.8 million a year earlier, and noted that recent acquisitions had begun to contribute to profits.

The group's current trading performance was reason to expect similar results for the entire year, if said.

Half-year net profit rose 47 percent to \$71.8 million from \$48.8 million, while revenue surged 66 percent to \$1.20 billion from \$71.3 million.

The pretax result was above market forecasts of \$95 million and the company's shares rose 3 pence to close at 684 pence on the London Stock Exchange.

**Nokia to Buy Stake in Horda**

Reuters

**HELSINKI** — Finland's Nokia Group said it agreed to buy a majority stake in Sweden's Horda AB, which makes technically advanced rubber products. Financial details were not disclosed.

Horda's customers include AB Volvo and Saab-Scania AB, for which it makes rubber profiles, tire-surfacing materials and special materials for cables.

Horda had estimated sales in 1987 of 250 million kronor (\$35.5 million), a Nokia statement said. Nokia had group sales last year of 12 billion, marks (\$2.75 billion).

"Through this deal, Nokia strengthens its position as the second-largest producer of rubber products in Scandinavia," Nokia's president, Simo Vuodenlahti, said Wednesday. "Nokia is now a major supplier for the automobile industry."

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**Canon's Results to Exceed '87 Estimate, Sources Say**

Reuters

**TOKYO** — Canon Inc.'s parent company profit is likely to reach 20 billion yen (\$141.3 million) in the year ending Dec. 31 if the yen-dollar exchange rate remains at its present level, company sources said Wednesday.

This estimate is above the official earnings estimate of 18 billion yen. In 1986, Canon earned 13.18 billion yen on sales of \$59.36 billion. Sales in 1987 are also expected to exceed an earlier estimate of 55 billion yen, the sources said.

The improved forecast is based on higher domestic and overseas demand for copiers and other office equipment and the effects of recent internal restructuring.

Buyout sales of high-priced new model cameras are also expected to help increase profit, the sources said.

In August, the company reported parent company profit of \$4.3 billion yen for the first half, down 66 percent from a year earlier, on sales of 25.98 billion yen, down 8.4 percent.

**LIFERS:****Less Job Security**

(Continued from first finance page)

**MOTOR CO.** executive, who, later in his career, turned Chrysler Corp. around as chairman.

According to a recent survey by MSL, the British executive placement company, 292 positions advertised in the British press specified an age, and 85.5 percent specified a limit of 40. In one issue of the Daily Telegraph, which advertised 400 senior posts, only two specifically sought someone over 45 — for a golf club chairman and a clerk for Salisbury Cathedral.

"The most difficult people for us to help are those in their mid-50s, who have spent their entire careers with one company, and all their experiences are abroad," said Pauline Hyde, of Pauline Hyde & Associates, the London-based placement company in London. "A one-company person has to prove to a new employer that he is adaptable to a new corporate environment."

But there are other views. "On the whole a top executive who has had experience working in two major corporate environments rather than one over 20 years, is a more experienced individual," said David Norman, of Norman Recruitment International, the London placement company. This was the company that in 1980 helped pick the 67-year-old U.S. investment banker, Ian MacGregor, for the No. 1 job at British Steel Corp. "Somebody who has worked in one company can be the creature of one corporate environment and it can be harder for them to move."

Now, some managers are choosing varied careers. "I worked for Royal Dutch/Shell which was a very effective bureaucracy for 20 years," said Otto Boett, 45, who spent his entire corporate career there until two years ago, when he joined BCG, an Amsterdam company that provides companies with interim managers. "A very large bureaucracy cannot always offer the opportunity that people who want to change things all the time are looking for."

Consolidated, with 26.2 percent of Newmont, also has said it has no plans to acquire more Newmont stock or take over the company.

Analysts said Mr. Pickens wants Newmont primarily for its valuable gold reserves in Nevada. Newmont also has cash reserves of \$640 million and marketable securities worth about \$600 million.

(AP, UPI)

**Bankers Trust Prepares to Issue New Stock**

By Robert A. Bennett

New York Times Service

**NYK NEW YORK** — A battle for stock market investors by the biggest U.S. banks has heated up with an announcement by Bankers Trust New York Corp. that it will soon issue \$250 million in stock.

It comes Tuesday, the third such move by a major bank in recent weeks, angered some big investors and raised questions about whether the stock market could absorb so much new stock in stock holding companies.

Citicorp joined the market last month when it said it planned to raise \$1 billion through a new issue. Shortly afterward, Manufacturers Hanover Trust Co. said it would issue \$250 million in new stock.

The moves "are ill advised and ill timed," said John B. Neff, portfolio manager for the Windsor Fund, which owns almost 6 million shares of Citicorp and almost 4 million shares of Bankers Trust.

Bank stocks fared poorly Tuesday, with Bankers Trust taking a particular beating. Its shares lost more than 4 percent of their value.

"The market place has reacted negatively to Bankers Trust's offering, not because it's Bankers but because it's the third issue on the part," said J. Richard Fredericks, a bank stock analyst for Montgomery Securities in San Francisco.

Bankers Trust apparently is expecting some market indigestion and therefore is rushing to beat the other issuers, analysts said.

Common stockholders' equity stands at 4.1 percent of its assets.

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Because Bankers Trust is in the strongest financial and earnings position, analysts think it can go to market with less of a sales effort than Citicorp or Manufacturers Hanover will need.

A decision by three major bank holding companies to issue new equity could put pressure on other leading banks to follow. Raising equity has become a high priority since earlier this year, when banks decided to take big reserves against their loans to Latin America.

Common stockholders' equity at Citicorp amounts to 2.7 percent of its total assets, and at Manufacturers Hanover, to 2.4 percent.

Bankers Trust's equity stands at 4.1 percent of its assets.

**Floating-Rate Notes**

Sept. 9

**Dollars**

Interest/Mkt. Coupon Yield Bid Asked

American Home 8.64% 8.64% 8.62% 8.62%

American Int'l 8.62% 8.62% 8.62% 8.62%

American Prod 8.62% 8.62% 8.62% 8.62%

American Prod/Fed 8.62% 8.62% 8.62% 8.62%







from Goechel's own diary. Michael's searchings are set down in a grand, high-flown manner, and the writing still proceeds by theistic fits and starts.

Many entire paragraphs are lost.

Or are even as short as this:

From the reader's point of view, this page has its advantages. What has been indigestible had us in solid, sometimes comparatively easy to swallow "chew," in fact punches its points home more effectively than any other. It is, I must say, a great pleasure to expect. But forged is longer, and for the most part, remains an adolescent dream. It reveals about the author, and about his Nazi mentality in general.

There are only three short paragraphs that might be called "real." Nephew, in two of them, Michael's raptures over an unnamed Father, even "like flaming lava," in the third. It is impossible to prove beyond a shadow of a doubt that these passages were added when it was published in 1929, but everyone there being interpolations. When he left, Goechel had not yet had his anti-Semitic, certainly not a bad, but extremely nihilistic — an all-call for national regeneration and the overthrow of our own institutions. But there are few other themes, above all the concept in which "labor is marching on."

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In large measure, however, who is to believe? For all his stridency, you do see it, thrashing around, clawing at the trusty heart of the story. He says, "I have a name; I want to have a name."

Goechel succeeds in solving the mystery by grafting another man, partly idealized and indistinct, Michael as a minor, is inspired by the love friend to whom the novel is dedicated.

"Management left us no choice but to set a strike date," said Gene Upshaw, the executive director of the players' union. Representatives from all 28 teams were here Tuesday and, Upshaw said, unanimously favored a strike if a contract could not be concluded. The vote for a deadline after the second game, Upshaw said, was 24 to 4.

Upshaw said that an offer presented to the players by the league's management committee on Monday represented \$43 million in "givebacks" that the team owners wanted the players to accept.

He said the union's detailed analysis of the "givebacks" would be forthcoming.

Jack Donlan, the negotiator for the owners, said of the strike threat: "It's not unexpected. It conforms to their history. The history of this union is to put negotiations in crisis. They've never negotiated without a strike. Now that we know

what their strike agenda is, what is their bargaining agenda?"

But Donlan did not rule out the possibility of reaching an agreement without a strike, saying he hoped to resume negotiations on Friday. "I anticipate no great delay in resuming meetings," he said.

The current contract, which expired Aug. 31, was reached after a 57-day strike in 1982.

Upshaw did not rule out a dead-

line extension if the players and owners make some progress toward an agreement. "Jack and I have to work against the deadline," he said.

"I know the fans are upset," he added. "They want their game. I want it too."

The most important issue separating the two sides is how much compensation a team should receive from another team that signs a player who has declared himself a free agent. Currently the cost to the signing team is keyed to the player's salary. If a player with three years' experience and earning \$220,000 a year, for example, declared himself a free agent, the club signing him would have to surrender its first and third draft choices the following year.

The players' union says that makes the cost to the new team so onerous that the signing of free agents has virtually halted.

In their latest offer, the owners have proposed reducing the cost to the signing team in that example to a single second-round draft choice. The union has rejected that, calling for the signing of free agents with onerous compensation.

The owners have said they were willing to liberalize the compensation system but will not give it up.

The current owners have also proposed increasing team rosters from the present 45 players to 47. The union is seeking 49.

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## McNeil Ousts Evert; Graf and Edberg Win

*The Associated Press*

**NEW YORK** — Chris Evert was upset by Lori McNeil in the quarterfinals of the U.S. Open tennis championships Wednesday, the first time in 17 years that Evert has failed to make the semifinals.

Evert, a six-time open winner and seeded No. 1 this year, bowed by 6-3, 2-6, 6-4. "I guess that's what happens when you get older," said Evert, 32, who lost her service all five times in the final set. "You have a few more bad days.... I felt so flat out there."

It was only the second time in 50 grand slam tournaments that Evert had failed to make the semis and the first since she lost to Kathy Jordan in the third round at Wimbledon in 1973. "I kept the pressure on," said

McNeil, 24. "I kept coming in and it worked."

Meanwhile, top-seeded Steffi Graf of West Germany defeated No. 5 Pam Shriver of the United States, No. 3, 6-3, 6-3. And second-seeded Stefan Edberg and Mats Wilander advanced to the men's quarterfinals by completing victories over novices.

Edberg beat fellow Swede Jan Sverman, 6-2, 7-6 (10-8), 6-3, and Wilander beat American Ken Flach, 6-3, 6-3, 7-6 (7-4). Both matches had been suspended by rain on Tuesday — whose only completed match saw Hana Sukova, seeded sixth, defeat No. 9 Claudia Kohde-Kilsch of West Germany, 6-1, 6-3, in a women's quarterfinal. Wednesday's other women's quarters pitted second-

seeded Martina Navratilova against No. 8 Gabriela Sabatini of Argentina; the winner will meet Sukova.

In the men's quarterfinals, Edberg will face the winner of Wednesday's Andrei Chasakov-Ramach Krishnan meeting. Wilander's next opponent will be the survivor of the match between No. 5 Miroslav Meir and Australian Mark Woodforde.

In two quarterfinal matchups Wednesday, No. 6 Jimmy Connors was pipped against No. 13 Brad Gilbert and top-seeded Ivan Lendl was to meet No. 8 John McEnroe.

"Wimbledon was very disappointing, it is impossible to prove beyond a shadow of a doubt that these passages were added when it was published in 1929, but everyone there being interpolations. When he left, Goechel had not yet had his anti-Semitic, certainly not a bad, but extremely nihilistic — an all-call for national regeneration and the overthrow of our own institutions. But there are few other themes, above all the concept in which "labor is marching on."

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